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Railway Age

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Alphabetical Index to Advertisements, Page 80

Classified Directory of Advertisers, Page 76

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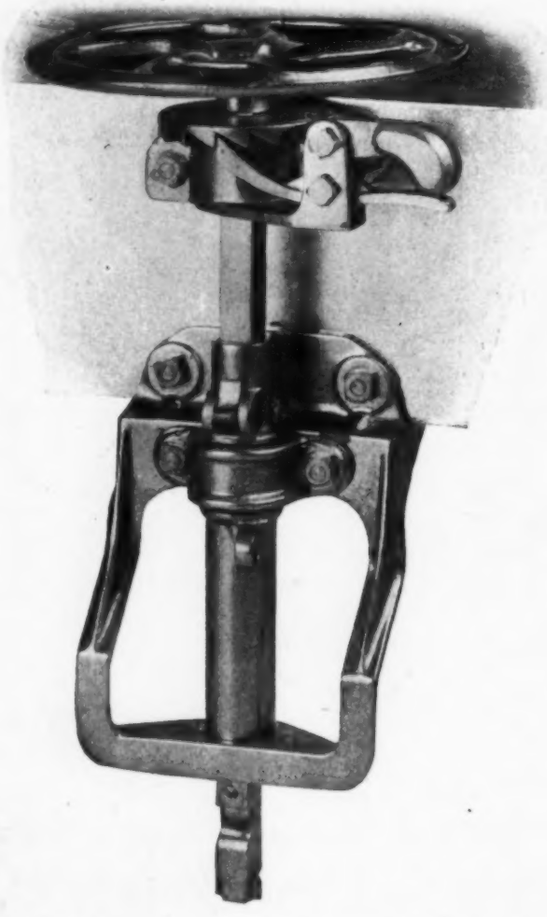

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Volume 76 **Number 19**

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EDITORIAL

Railway Age

The Table of Contents Will Be Found on Page 5 of the Advertising Section

The Engineer in Railway Service

The recent addition of another name to the comprehensive list of engineers who occupy the position of assistant to the president on American railroads is but another indication of the growing appreciation of the value of the technically trained man on the staff of the railway executive. This, however, is but an evidence of a general tendency. Another is to be observed in the gradual though steady movement toward the more general employment of engineers in the administration of maintenance of way. More railroads are now utilizing the division engineer as the intermediary between the track supervisor and the superintendent while others are adding an engineer maintenance of way to the staff of the district or system operating officer as a means to the same end. A number of railroads are now studying ways and means for recruiting technical men for the supervisory positions in the maintenance of way department and at least one has recently adopted the definite policy of employing only engineers for such positions. The effect of this general tendency is to be observed also in the attitude manifested by the non-technical roadmasters and supervisors toward the use of engineering knowledge in their work. Whereas they were formerly given to open antagonism or disdain they are now inclined to look with favor on the application of scientific principles in maintenance of way work as is evidenced by their tendency to adopt as common usage the more technical terminology of the engineer in place of the rough-and-ready diction which they inherited from the old pick handle and "terrier" days on the track. It is clear, therefore, that there is a growing appreciation of the technically trained man, but one thing remains—the development of means of attracting the most promising candidates from among the graduates of the technical schools.

Suburban Passenger Facilities

The Morris canal, a historic waterway extending from New York harbor across New Jersey and formerly an important highway for the transportation of anthracite coal, is scheduled for abandonment and nobody knows what to do with it. The eastern section of the canal passes through one of the most populous regions of the country, including such large cities as Newark and Paterson, and the right-of-way is highly valuable—but for what? Business men in this area have lately been considerably disturbed over the inadequate facilities provided for passenger transportation. Naturally, therefore, the first idea for the utilization of this right-of-way was for a rapid transit line, with the possibility of freight service to industries during non-rush periods. Putting the abandoned right-of-way to this use would doubtless be of the greatest benefit to the territory and would be economically justifiable, but the transportation companies in the neighborhood are not apparently competing very strenuously with each other for the privilege of building a line along this right-of-way. Only one company, a street railway concern, has made a tentative proposal for using some of the canal bed for its purposes—and this proposal applies only to the city of Newark and not to such large centers as Bloomfield and Paterson and the large undeveloped areas between them. The reason for this situation is obvious. Suburban passenger service at present rates is not sufficiently remunerative to pay an attractive return after operating expenses and capital charges. Rates high enough to encourage the railways to develop such service would tend to drive away traffic. The fact of the matter is that improved facilities of this sort redound almost entirely to the benefit of owners of real estate, and, in the long run, if adequate suburban and interurban passenger facilities are to be provided in growing communities it is the owners of real estate who will have to make the necessary capital expenditures to provide such service. The railways which are faced with demands for improved service and facilities of this character, should, as good citizens, explain the situation at every opportunity to the public. Until the public understands these conditions thoroughly, demands for utterly unremunerative expenditure will continue to be made of the railroads and meantime development of transportation adequate to local needs will languish.

Saving $3,500 a Year in a Telegraph Office

By the installation of new equipment and by a change in the method of operation the St. Louis-San Francisco has effected a saving of $3,500 a year in the cost of operation of its main telegraph office at Springfield, Mo. The new system of operation is built around a concentration unit, where all incoming lines terminate. Every call from way station operators is answered at once by the attendant at this concentration unit. If the relay operators are busy the calling office is advised of the time at which its message can be received. In addition to expediting the service and reducing the relay operator hours, this method of operation also results in a marked saving in way operator's time. Instead of spending from five minutes to a half-hour calling the main office, an operator now receives an immediate response, and his business is either accepted or he is told when to call again, which permits him to devote his time to other station duties in the interval. Thus the message load is distributed to advantage, thereby enabling a smaller force to be maintained and also avoiding circuit congestion. This system of operation is an excellent example of what some roads are doing to meet the growing demands for better communication, without making large expenditures for additional line wire and other outside plant facilities. Many roads have neglected their communication facilities too long and as a result are suffering serious delay on important messages during heavy traffic seasons. Other roads can profit by the experience of the Frisco.

The Cost of One Hour Train Delay

The data compiled by the Interstate Commerce Commission relative to the values of freight train service units have been used recently to good advantage by the Signal Section of the A. R. A., in establishing the cost of freight train delays. As reported by the commission the average cost per freight train mile for 1922 was $1.735, including only those operating costs that are directly affected by the operation of every train, *i.e.*, locomotive repairs, enginehouse expense, wages of trainmen and enginemen, fuel and other supplies but not including car

repairs. At an average speed of 11.1 miles per hour this gives a total cost of $216.59 for the run over a 125-mile division, or at the rate of $19.25 per hour. The studies of the Committee on Economics of Signaling of the Signal Section indicate that if a reduction of 1¼ hours can be made in the time required for each freight run, there will be a saving, on the basis of 20 freight trains per day, of 25 train-hours. With this reduction the saving for one hour and a quarter is $26.34, which is equal to $21.07 for each hour's delay. This amounts to $526.75 a day or $192,264 a year, which amount, capitalized at 6 per cent, equals $3,204,400. This 1¼ hours can be eliminated by increasing the average speed from 11.1 miles per hour to 12.5 miles per hour. On many single track divisions this result can be accomplished by the installation of automatic block signals and remote-controlled switch machines for the operation of passing track switches, thus eliminating many train stops and delays. The principal value of the committee's work is the development of the method for establishing the cost of delays. The most interesting feature of the report, which is included in an article elsewhere in this issue, is the fact that any road that may desire to determine the cost per hour of its freight trains may insert its own figures in the calculations in place of the average costs as shown in the report and thus be in a position to consider intelligently any proposed expenditure for increased track capacity by double tracking, signaling, or other measures. The method will also be useful in determining the economic value of improved facilities or improved operating methods.

An Innovation in Electric Locomotives

Electric locomotives which receive power from a 22,000-volt, 25-cycle alternating current trolley and transform it on the locomotive to 600-volt direct current power for use by the traction motors are being built by the Detroit, Toledo & Ironton. A test of the electrical apparatus which is to be used on one of the locomotives made by the Westinghouse Electric & Manufacturing Company was described in the last issue of the D. T. & I. Railroad News. The test was made with a New York, New Haven & Hartford locomotive, designed to operate on direct current, and a flat car on which was mounted the electrical apparatus which will be used on the D. T. & I. locomotive. The pantagraphs on the locomotive were used to collect 22,000-volt alternating current power from the trolley, but were disconnected from the other circuits in the locomotive and connected instead to the apparatus on the flat car. This apparatus consisted essentially of a transformer which stepped the voltage down to 1,200 volts, and a motor-generator set which received the 1,200-volt alternating current power from the transformer and developed 600-volt direct current power for the traction motors. Simple field control apparatus on the flat car was used to control the amount of power delivered to the traction motors on the locomotive. For a long time engineers have talked of a locomotive of this type but until now no one has had the courage to build one for actual railroad service. The locomotive has a number of advantages; a high voltage trolley can be used which represents a saving in copper, direct current motors are used which have ideal characteristics for traction purposes with the added advantage in this case of field control which eliminates large complicated switches; and as the motor of the motor-generator set is a synchronous motor, the power factor of the locomotive can be kept up and line loss in the trolley reduced to a minimum. On the other hand, the motor-generator set which is to be used is approximately 15 ft. long by 6½ ft. in diameter and weighs nearly 32 tons. The speed of the rotor is 750 r. p. m. No such large piece of rotating apparatus has ever been used on a locomotive and its adoption is an innovation. Apparently, however, it presents no difficulties which cannot be disposed of in the development work which is always coincident with a departure of this kind. Certainly, it is an interesting experiment, for if successful it may revolutionize and at least will influence the design of future electric locomotives.

La Follette States His Real Object

Senator La Follette of Wisconsin is the acknowledged leader of the radicals in public life. He has also for years been their recognized leader in carrying on anti-railroad propaganda. It is, therefore, gratifying that Senator La Follette at last has made an unequivocal statement of his position on the question of private versus government ownership of railroads. For years the *Railway Age* has presented evidence and arguments in support of the charge that the real object of those who have been carrying on anti-railway propaganda and, especially of those who have been advocating a drastic and confiscatory reduction in the valuation made by the Interstate Commerce Commission, was to force the railroads into government ownership. In the political platform issued by Senator La Follette in Washington on April 6, he included the following planks: "Repeal of Esch-Cummins railroad law and the fixing of railroad rates upon the basis of actual investment and service costs. *Public ownership of railroads.*" After Senator La Follette's "National Conference on Valuation of Railroads" was held in Chicago last summer a committee of railway executives issued a statement attacking the program adopted and charging that the real purpose of those who adopted it was to force the railroads into government ownership. Donald Richberg, counsel of the railroad labor unions, who was made also counsel of the National Conference on Railroad Valuation, issued a statement in reply in which he denounced the railway executives for trying to "draw the red herring of government ownership" across the path of those who are seeking a reduction of the valuation. Senator La Follette's statement of his political platform is proof from the highest source of the charge made by the railway executives, and shows that the *Railway Age* always has been right in its contention that La Follette and his followers were not seeking a reduction of railway valuation in an honest effort to bring about a reduction of rates, but as a means of making successful private management impossible and government ownership unavoidable. We thank Senator La Follette for having torn aside the veil of hypocrisy and admitting just what he and his followers are trying to accomplish. He has made it possible to discuss the questions of railway valuation and public ownership in future upon their merits, and as practically the same question, which, in fact, they are.

More Locomotives Used to Handle Less Traffic

During the year 1923, the railroads received 3,362 new locomotives for domestic service in the United States. On most of the roads the locomotives received exceeded the retirements, both in number and capacity. These additions to motive power, coupled with the more intensive use of all locomotives, were important factors in enabling the railroads to handle the largest sustained volume of freight traffic in history. But the volume of traffic handled by some roads showed a decrease over the previous year, whereas the number and capacity of locomotives in operation increased. One of these roads was an important mid-western trunk line that handled about three billion gross ton-miles of freight in December, 1922. This road received a number of new freight locomotives of the most modern design and capacity during 1923. In December, 1923, the number of servicea-

ble freight locomotives not stored on this railroad exceeded the number in service during December, 1922, by 54. As a result, the gross ton-miles handled per serviceable freight locomotive not stored declined from over 47 million in December, 1922, to slightly less than 40 million ton-miles in December, 1923. It is estimated that the freight locomotives in service on this road averaged 17 hr. 16 min. per day at terminals, in enginehouses, etc., during the month of December, 1923, as compared with an average terminal detention of 15 hr. 8 min. in December, 1922. If this road had continued to operate its locomotives as intensively in 1923 as in 1922, it could have handled the same traffic with 186 less locomotives. What would have been gained if these locomotives had been stored as the traffic declined and the remaining locomotives operated under maximum traffic conditions? In the first place, it may be assumed that the least efficient types would be withdrawn from service so that the average efficiency of the locomotives retained in active service would be increased. Then there are certain items of overhead expense attached to every locomotive in service that may be eliminated when the locomotive is stored. If a constant effort is made to secure the maximum output from every serviceable locomotive in use and to store serviceable locomotives not actually required, the operating and mechanical departments observing this practice will be in a much better position to respond to large increases in the volume of traffic. Furthermore, a careful study of the non-productive time of locomotives will indicate clearly the influence of improved engine terminal facilities in reducing this time to a minimum. With a realization of the need many essential terminal improvements will unquestionably be made.

A Significant Advance in Wages

THE AGREEMENT made this week by a committee of officers representing a majority of the western lines to grant an advance of approximately 5 per cent in wages to the conductors, trainmen and yard employees of these roads is a development which is significant, important and ominous. It undoubtedly means that in a short time approximately the same advance must be granted by almost all the western roads to their conductors, trainmen, switchmen, locomotive engineers and firemen. Several individual railways in the east and south already have granted similar advances, and it is reasonable to assume that an advance in wages for most employees in train service in the country will soon be in effect. It is also probable that some other classes of railway employees will ask for advances in their wages. An advance of 5 per cent in the wages of all train service employees would amount to more than $40,000,000 a year.

The way in which this advance in wages is being brought about may well cause the labor policies that have been favored within recent years by the labor unions on the one side and the railway managers on the other to be carefully reconsidered. It is extremely doubtful if there is any justification for this advance in wages at this time. It is due almost entirely to extremely skillful manoeuvering and negotiation by the labor leaders.

After the railways were returned to private operation four years ago the labor unions tried to get negotiations between the railways and their employees carried on nationally, while a majority of the railway executives insisted upon negotiations between the individual roads and their own employees. The latter policy has, in effect, prevailed in the recent negotiations between the railways and the train service employees. It seems quite probable that if there had been national negotiations the outcome would have been an agreement to maintain for another year the wage schedules already in effect. Under the policy actually followed, however, the engineers and firemen succeeded in getting an advance in wages from the New York Central system. Probably it was granted because the New York Central Lines were prosperous and their management believed they could better afford to grant the advance than fight a strike. An advance to the engineers and firemen necessarily meant an advance to the conductors and trainmen. An advance in the wages of these employees on one large eastern system necessarily meant corresponding advances on other railways in the east and south, in both of which territories most of the railways are doing relatively well financially.

In consequence, when the committee of officers representing the western roads entered upon negotiations with the conductors and trainmen they were confronted with the fact that if an advance to the train service employees was refused by the western roads there would speedily be presented the situation of yard and train service employees working side by side in terminals in Chicago, St. Louis and other points for different wages. The committee of the western lines tried to get the case carried to the Railroad Labor Board. Its members finally became convinced, however, that unless the western roads followed the example of the eastern and southern lines it would be a matter of only a short time until they would be confronted with a "runaway" strike beginning in the Chicago terminals and spreading over all roads that did not grant an advance, with consequent demoralization of railway service and general business. The question was, whether, under existing conditions, these roads could better afford to grant an advance in wages equal to that being made in eastern and southern territory or go through a strike, and their representatives accepted the former alternative.

Experience is often the best teacher. The *Railway Age* has in the past found it difficult to form a definite opinion as to whether, from the standpoint of the employees, the railways and the public, local or national wage negotiations were preferable. This recent experience indicates with great force that on the whole the policy with respect to wage negotiations which has been favored by most railway executives since private operation was resumed has been, from the standpoint of the railways and the public, unsound, at least in so far as it affects relations with the train service brotherhoods. The train service brotherhoods are powerful national organizations and each of them deals with the situation nationally, whether the railways do or not. The result of the train service brotherhoods acting nationally and the railroads acting, or trying to act, individually has been that the brotherhoods have secured an advance in wages which, if the railways had stood together as a unit, probably would have been avoided. The theory of the railway officers who have opposed national negotiations has been that each road would be able to secure settlements with its own employees in accordance with local conditions. That theory, in this instance at least, has completely broken down.

The demonstration of its complete breakdown is afforded by the fact that both railroad and other conditions differ widely at present in eastern and southern territory, on the one hand, and in western territory, on the other, and that, nevertheless, practically the same advance in wages is being granted in all these territories. In the east and south generally prosperous conditions prevail; the railways are doing fairly well and there is little or no demand for reduction in rates. In the first two months of this year the eastern roads earned at the annual rate of 5.83 per cent on their valuation, and the southern roads at the rate of 6.72 per cent. In western territory, on the other hand, general business is comparatively poor; there is a strong demand from the farmers for reductions in rates; and the railways in the first two months of the year earned at the annual rate of only 4.26 per cent on their valuation. The western roads have a powerful anti-railroad sentiment to combat. They have refused to grant reduction of rates to farmers who are actually suffering

upon the ground that they could not afford them; and now, as a result of the series of developments outlined, have been practically forced to grant to the train service employees, who are much better off than most of the other people in western territory, especially the farmers, an advance in wages about equivalent to the reduction of rates upon grain that the western state railroad commissions are now seeking on behalf of the farmers. Nor is this all—as subsequent developments in other parts of the railroad labor field undoubtedly will soon show. The existing situation and its possible consequences do not afford a pleasant subject for contemplation by those who wish to see the railways prosper and who also wish to see them adopt and carry out policies that are wise and logically defensible. It does not reflect credit upon the policy of negotiations by individual railways with their own employees which, as recent developments show, actually amount to negotiations by individual railways with national labor organizations. It forcibly suggests that an early, careful and thorough review and reconsideration of their entire labor policy by the railway executives of the country would be not only in order, but is greatly needed.

Eight Years' Record of Wages

THE INTERSTATE COMMERCE COMMISSION added to its tabulation of railway statistics for 1923, which has recently been made public, some data that makes possible absolutely reliable comparisons between the hours of work and compensation of railway employees in the eight years 1916 to 1923 inclusive. These comparisons are especially interesting and significant at present in view of the fact that for four years wages have been fixed by the Railroad Labor Board, the abolition of which is now being sought by the labor unions.

There has been some controversy regarding the exact measure of the changes in average wages which have occurred since before the United States entered the great war, this being due to the fact that hours of work as well as wages have undergone substantial changes. The statistics in the accompanying table showing average compensation and average number of hours worked yearly by employees are from the commission's tabulation, while the percentages showing the increases and decreases that have occurred, and also the average earnings per hour, are the results of our own computations. The figures do not include the compensation of or hours worked by railway officers.

AVERAGE HOURS WORKED AND COMPENSATION OF RAILWAY EMPLOYEES, 1916-1923, INCLUSIVE

Year	Average compensation for year	Per cent	Average hours worked	Per cent	Average earnings per hour	Per cent
1916	$868	100	3,148	100	27c	100
1917	981	113	3,117	99	31c	115
1918	1,399	161	3,023	96	46c	170
1919	1,461	168	2,629	84	55½c	206
1920	1,794	207	2,692	86	66½c	246
1921	1,652	190	2,489	79	66½c	246
1922	1,590	183	2,579	82	61c	226
1923	1,588	183	2,584	82	61c	226

It will be seen that the average annual earnings of employees increased rapidly from 1916 to 1920, when they were 107 per cent higher than four years previously. Their annual earnings have decreased since then, but in 1923 still averaged 83 per cent higher than in 1916.

The increase in earnings was accompanied by a decline in hours worked until in 1921 the average employee worked 21 per cent fewer hours than in 1916, while receiving 90 per cent more compensation. In 1922 and 1923 the average employee worked 18 per cent fewer hours than in 1916, while receiving 83 per cent more compensation.

The result of the simultaneous reduction in working hours and increase of annual earnings is shown by the statistics in the last two columns relative to average earnings per hour. Between 1916 and 1920 average earnings per hour increased from 27 to 66½ cents, or 146 per cent. In 1922 and 1923 average earnings per hour were 61 cents, or 126 per cent higher than in 1916.

Considering three hundred days as a working year, the average employee in 1916 worked 10.4 hours a day and in 1923 only 8.6 hours a day. If the average employee had worked in 1923 as many hours as in 1916 his total compensation for 1923 would have been $1,920.00, or 126 per cent more than in 1916, and $332.00 more than it actually was in 1923.

The total compensation paid both to officers and employees in 1916 was $1,489,700,000, and of this officers received $53,274,000, or 3.6 per cent. The total wages paid to all officers and employees in 1923 was $3,043,161,000 and of this officers received $83,636,000, or 2.7 per cent. The total compensation of the executives, general officers and assistants in 1923 was $48,416,000, or 1.6 per cent of the total pay roll. This figure includes the so-called "fancy salaries." The total pay roll in 1923 was 104 per cent greater than in 1916.

Since many railway employees apparently believe they were better paid under government control than they have been under private operation, and long for a return to the former policy, it is interesting to compare the compensation received and the hours worked by them in 1919, the last year of government control, with those for 1923. The average hours worked in 1919 were 2,629 and the average compensation $1,461.00, or 55½ cents an hour. The average hours worked in 1923 were only 2,584 and the average compensation $1,588.00, or 61 cents per hour. In other words, the average hours worked were less in 1923 and the average compensation greater than in 1919, the average wage per hour being 10 per cent greater than in 1919 and only 9 per cent less than in 1921, when it reached the highest point ever attained.

Whose Problem Is Grade Separation?

IT IS DOUBTFUL if any development in the industrial world has been more far reaching in its effect than the transition from horse-drawn to motor-driven vehicles for highway use which has taken place during the last few years. This transition has been accompanied by a remarkable increase in the number of vehicles using the highways, which has created many new problems. Out of it has arisen a clamor for the elimination of railway grade crossings with highways by the separation of grades or the relocation of the highways.

That this condition warrants serious attention is self-evident. That it is not the sole or even the most important phase of the highway traffic problem is equally obvious. The streets in our large cities and the principal highways leading from them have become so congested that travel over them is accomplished only with great difficulty and serious delay. Furthermore, the loss of life at highway grade crossings, serious though it is, is small in comparison with that resulting from highway accidents in which the railroads are not involved, indicative of which is the fact that more than 700 persons were killed in automobile accidents within the city of Chicago alone last year, practically none of which involved conditions for which the railways were even remotely responsible.

Relatively little is being done by public authorities to check this large loss of life which is increasing daily, yet each accident at a grade crossing, regardless of the division of responsibility, brings about a demand for the expenditure

of a large sum for the elimination of this point of danger. This agitation is becoming so pronounced and is being fostered so aggressively by highway authorities and automobile interests that it demands more consideration and more aggressive and united action on the part of the railways than it has yet received.

The problem of reducing automobile accidents is primarily that of curbing reckless drivers—the man who attempts to beat a train to a crossing or who drives through gates which have been lowered for his protection. A better means of correcting the situation and one which has scarcely been tried in this country, is to enforce sane driving regulations with sufficient thoroughness and severity to cause respect for and lead to the observance of them. Insistence that all drivers stop before crossing railroad tracks would very largely eliminate the accidents which are now causing so much concern. While several states have passed laws to this effect little attempt has been made to enforce them, although the fact that they can be enforced is demonstrated by the uniformity of adherence to requirements that traffic stop before crossing boulevards or other important thoroughfares. The unfairness of saddling the railroads with the cost of protecting a driver against his own carelessness when proper regulation would make this expenditure unnecessary should lead to the more general consideration of the latter course. Yet in many instances those public officers who are most insistent upon the separation of grades are showing the least interest in the enactment or enforcement of regulations for sane driving over crossings.

Prior to the development of the automobile and the motor truck, the grade crossing, taking the country as a whole, did not constitute a serious menace. In general the traffic was light and those crossings which carried a heavy traffic were protected by gates or flagmen until more adequate measures could be taken. With the advent of the automobile, highway traffic has increased tremendously and while railway conditions have remained practically the same, crossings which were previously little used have become busy. The railways are, therefore, facing the necessity of making large expenditures to meet a condition which has developed without participation in or advantage on their part.

The magnitude of the grade crossing problem is indicated by statistics prepared by the Interstate Commerce Commission which show that there were 241,692 grade crossings with streets and highways on the Class I railways of the United States on December 31, 1922, 30,250 of which were protected by gates, flagmen or signals. While many of the more than 210,000 crossings which are still without any special form of protection are in rural communities where the traffic is light, a large number are of the class for which protection is being demanded. An indication of the cost of their elimination is afforded in a message which the governor of New York recently sent to the legislature of that state in which he stated that the Public Service Commission of that state had estimated that the elimination of 4,000 dangerous crossings in that state would require the expenditure of $400,000,000, while in Wisconsin 46 projects handled by the State Highway Commission have cost $699,998 of which amount $217,288 has been assessed against the railroads.

It is inevitable that many of these crossings will be eliminated and progress is being made in this direction, the statistics of the Interstate Commerce Commission showing that 612 grade crossings were eliminated during 1922. However, in fairness to the roads and as a matter of public policy for the communities, the heavy expenditures which are required for this purpose should be made only when other methods have been demonstrated to be ineffective. Where such separation is made the question may reasonably be raised as to the proportion of this expenditure which can properly be charged to the railways. In an effort to ascertain the present cost of accidents at grade crossings, a study was made recently of the investigation, legal and other costs, and settlements of all kinds arising out of grade crossing accidents on the nearly 12,000 miles of lines of the Chicago, Milwaukee & St. Paul, which study showed the average charge per year per grade crossing to be $12.93. If this amount is capitalized at 6 per cent, it will be equivalent to $215 per grade crossing.

The automobile is here to stay. The density of traffic on the highways will increase rather than decrease. This condition calls for careful study on the part of railway officers in order that the present heavy toll of life may be reduced to the practical minimum by the application of the reasonable measures for the control of the traffic to eliminate danger. The problem calls for the united effort of highway and railway officers in the development of measures which will afford the necessary protection at all points outside of as well as within the right-of-way line.

Books and Special Articles of Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

The American Constitution as It Protects Private Rights, by Frederic Jesup Stimson. Clauses protecting private rights, p. ix-xiv. See also Index under "Interstate Commerce," and "Railroads." 239 p. Published by Scribner's, New York, $2.50.

Appendix to the Annual Report of the Attorney General of the United States, 1922, *Containing the Correspondence Relating to the Action of the Government with Reference to the Interruption by Force of Interstate Commerce, the Carriage of the Mails, etc., in the Year* 1922. Contains correspondence and other data on the shopmen's strike. 67th Cong., 3d sess. House document No. 409. Part 2. 690 p. Published by Government Printing Office, Washington.

Gasolene as a World Power, by Edwin E. Slosson. Influence of increased use of gasolene on living, transportation, now and in the future. Pages 12-47 *Science Remaking the World,* edited by O. W. Caldwell and E. E. Slosson. 292 p. Published by Doubleday, Page & Co., New York. $2.50.

Social Politics in the United States, by Fred E. Haynes. "Railroad brotherhoods," p. 109-116. 414 p. Published by Houghton, Mifflin, Boston and New York. $3.50.

Periodical Articles

The Black Golconda—California's Oil Empire, by Isaac F. Marcosson. "Credit for the first practical demonstration of fuel oil on an American railroad is divided between the Santa Fe and the Southern Pacific . . ." p. 13. *Saturday Evening Post,* April 5, 1924, p. 12-13, 230, 233-238.

Mercury and Steam, by Mary Vanderpoel Hun. Describes the Emmet mercury vapor process. Forum, April, 1924, p. 523-527.

Our Revolution at Home, by Richard Boeckel. Labor banks and banking especially those founded by railroad labor organizations. Forum, April, 1924, p. 429-436.

A Study of the Kansas City Southern. An Inspection Trip of This Well-Managed Road Reveals Interesting Things, by William Peter Hamilton. Barron's, April 7, 1924, p. 7.

Successful Year for Swiss Federal Railways. Compiled from consular reports. First successful year since 1913. Commerce Reports, April 7, 1924, p. 54-55.

The Trans-Saharan Railway. "The French . . . are urged to lay down the Trans-Saharan by the instinct of self-preservation." From the *London Morning Post.* Living Age, April 5, 1924, p. 643-646. Map. p. 644.

Letters to the Editor

[The Railway Age welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]

A Joint for a U Rail

Winnipeg, Man.

To the Editor:

In a paper presented before the British Permanent Way Institute, Sir Bradford Leslie, who has served for many years on the railways of India, has suggested that a base-supported non-spliced rail joint designed to prevent deflection of the rail ends be substituted for the usual bolted splice connection. The writer is skeptical regarding the successful use of such a joint, but if it should prove to be a success it would solve the greatest difficulty in the way of substituting the U rail for our present T rail. The U rail is about as efficient in design as a beam as the T rail and is a much better design to meet lateral thrusts. One advantage of the U design over the T design, in the writer's opinion, arises from the fact that the head or bearing surface of the rail would come under the direct pressure of the rolls in the process of manufacture and consequently should be better adapted for the service required than is the head of the present T rail. The greatest advantage of the U rail, however, would be the tendency to change the piping from a vertical plane to a horizontal plane and thus decrease its bad effects. Some 15 years ago the writer was given authority by the management of the road with which he was then connected to purchase three miles of 90 lb. U rail for experimental purposes, but we could not design a joint that we considered satisfactory and the experiment was not made. J. G. Sullivan,
Consulting Engineer.

A Forward Step in Accounting

Spring Valley, N. Y.

To the Editor:

The main object of a classification of operating expenses is to permit of their easier analysis and more effective supervision, and it is undoubtedly the intention of the Interstate Commerce Commission, in proposing to set up a new account, "Purchasing and Stores," which includes the total stores expense now distributed to various primary accounts, to subject the operations of the supply department to closer scrutiny by the railroad executives. Millions of dollars are literally lost sight of every year, simply because the material accounts are so intermingled with those of the other departments that no clear and comprehensive view of the situation, as it relates exclusively to material, is ever in evidence, but is obscured by a maze of inter-divisional and inter-departmental accounting which effectually distorts the actual facts; and yet material absorbs one-third of the gross revenues.

Not more than one-third of the actual expense of handling this material is charged to the proper account, but is dissipated among numerous primary accounts to which the value of the material is charged, principally for the reason that there is no separate and distinct account to which it can be allocated; there is only the item of "Stores Expense" under a number of different heads, and there is no way of segregating and analyzing it as a whole; consequently it does not attract the attention of executive officers. They see only a charge which represents less than a third of the true cost, and think the work is being done economically.

The proposal to set up a primary account of purchasing and stores expense, under each of the general accounts for Maintenance of Way, Maintenance of Equipment and Transportation, would not cure the situation, but would leave matters just where they now are, because there is an item of "Stores Expense" under each of these general accounts at present. What is vitally important is to disentangle the material accounts from all other divisional and departmental accounts, and present them as a connected whole, so that they can be seen and understood. The only way in which any effective supervision of the transactions in material can be brought about is to dissociate them completely from the operations of the other departments, and view the activities of the supply department as an independent unit.

The proposed new account, "Purchasing and Stores," is the first step in that direction and will prove to be the most important advance toward increased economy in operation that has been made in many years. It will ultimately lead to a system of accounting for material entirely distinct from that of those other departments which use the material, and serving both as a check on its use and as an effective weapon against uneconomical practices. As a matter of fact, the operations of the supply department are just as distinct from those of the other departments as the Maintenance of Way is from the Maintenance of Equipment, or as either of them is from Transportation, but because its activities are so closely allied to all of the others, it has come to be looked upon merely as one of their adjuncts, and for this reason has escaped careful individual scrutiny.

For this reason, also, no special provision has ever been made for a separate accounting of its operations, and hence, no analysis of them has been possible. Setting up a separate account, under an entirely different head, would afford an opportunity to the other departments, whose employees are doing two-thirds of the work, to escape from some of their payroll charges by charging this labor to the new account, and it would not be long before it could be definitely determined how much of this work was being done by men whom the supply department could not control. This would naturally lead to the transfer of these men to the supply department jurisdiction for the purpose of co-ordinating their work, cutting out duplications and obtaining better supervision; better, because it would not be interfered with by extraneous interests. When these (apparently) increased labor costs appear, executives would want to know just what they were getting for this expenditure, which is concealed from them under the present system, and this would require a condensed statement of all the material purchased each month, as well as that which was actually used and charged to the operating and improvement accounts, which they do not see now because it only appears as scattered items in a hundred different accounts. Right here is the beginning of a uniform system of accounting for material, because it would develop that the easiest and most convenient method of getting this information would be through a single material account, which would do away with inter-departmental and inter-divisional charges and credits for material, eliminate a vast amount of cross-billing and unnecessary clerical work and greatly reduce the accounting expense, just as a consolidation of the work of handling would reduce the labor costs.

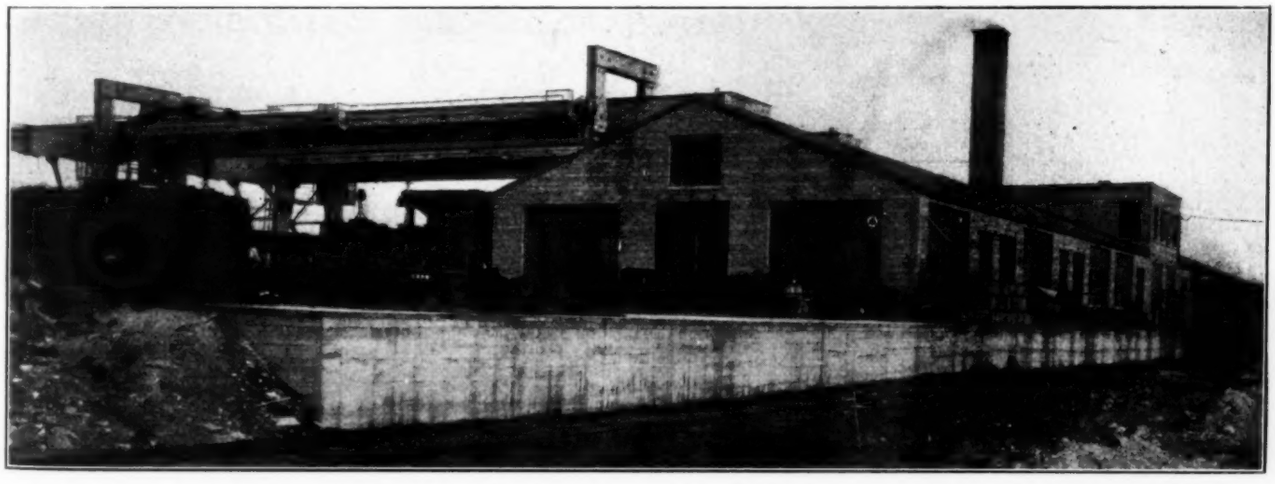
The consummation of this program may be a matter of slow growth but, once accomplished, the net results will be amazing to those who, under the present system of accounting, have no conception of the real facts which surround the operations relating to the purchase and distribution of the material they use. The important thing, just now, is the first step, even if it be a short one, and the stepping-stone is provided by this new account, "Purchasing and Stores," which the I. C. C. is proposing to set up. George G. Yeomans.

Two Large Gantry Cranes Are Prominent Features of the Eola Plant

C. B. & Q. Builds Modern Reclamation Plant

New Facility Has Large Scrap Dock with Huge Gantry Cranes to Facilitate Sorting

EXPERIENCE has shown railroads that money can be saved by reclamation but it has also demonstrated that money can be wasted very readily in the process. To accomplish the one without promoting the other, there must be adequate facilities, simplicity and system in operation and a central location. The Chicago, Burlington & Quincy has built a reclamation plant at Eola, Ill., near Aurora, which fulfills these requirements. It is modern in its detail and arrangement. All machinery is electrically-operated and many unique features of operation and management are involved, among which is the provision that in the process of reclamation nothing will touch the floor.



A View of the Reclamation Plant from the Rear, Showing the High Platform Along the Loading-out Track

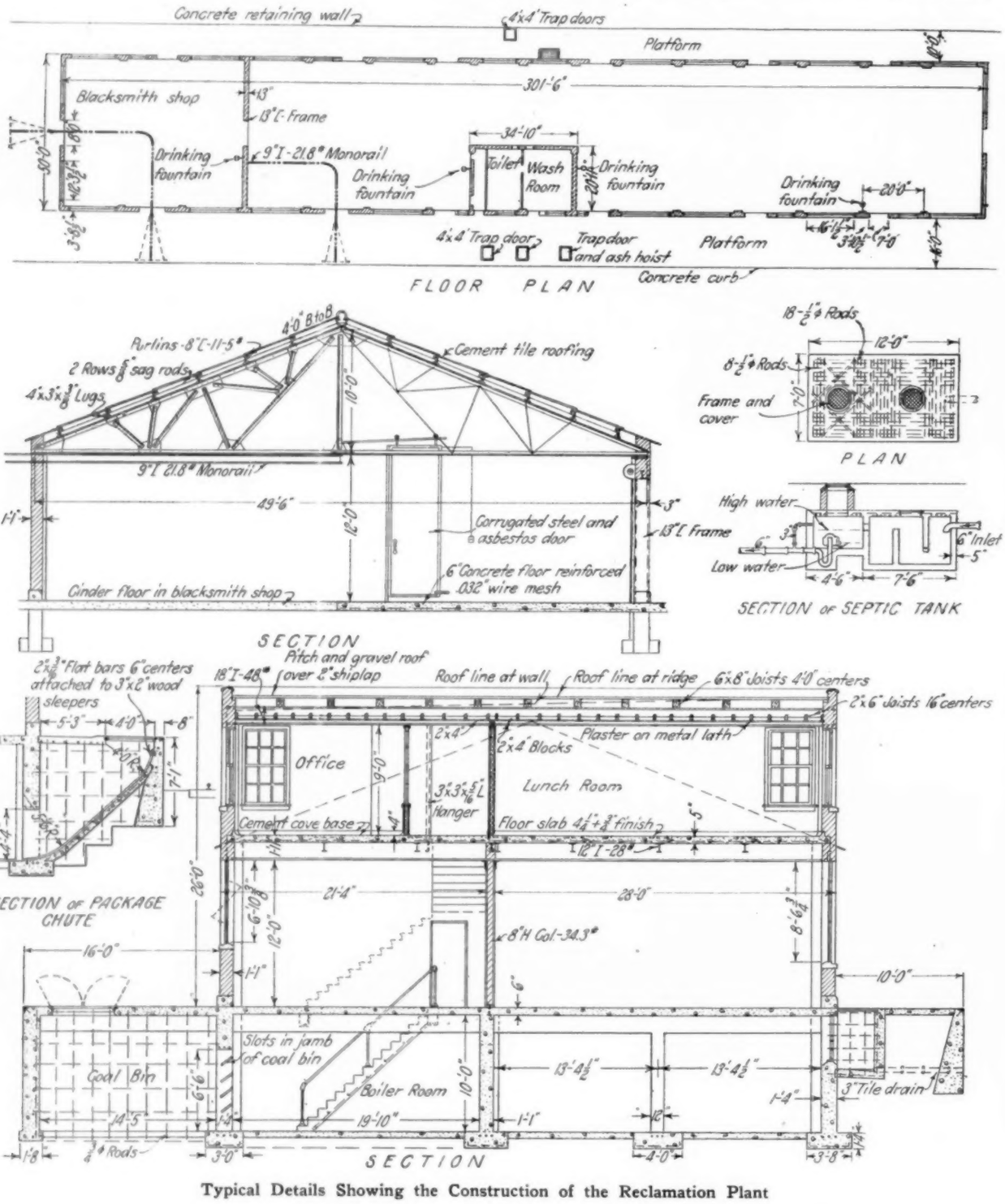
The reasons for locating the plant at this point were several. In the first place, most of the scrap accumulating on the Burlington is disposed of in Chicago and the closer to Chicago that facilities for collecting this scrap could be located the less back haul there would be. Because of this condition it has been the custom of the Burlington for many years to keep scrap cars moving eastward on each division until filled, after which they are billed direct to a central point. Havelock (near Lincoln), Neb., was one of two such points maintained prior to the building of the Eola plant, where all scrap from lines west of the Missouri river was gathered. Aurora, Ill., was the other, where all scrap from the lines east of the Missouri river was collected.

The second reason prompting the building of the plant at Eola was the fact that Aurora is the big distribution point on the system for material. The general store is located here, and also one of the main shops. Particularly, Aurora is the headquarters for all car material. Eola also afforded the advantages of ample area for future expansion as well as for economical construction and operation of the existing plant.

The Reclamation Area Is High and Dry

The facilities consist of a reclamation plant and a scrap dock, which are located on a strip of level land about 300 ft. wide lying immediately south of and parallel to the eastbound unit of the Eola yard. This land is several feet higher than the yard and is separated from rising land on the south by a large ditch cut to a depth 10 ft. or 15 ft. below the level of the reclamation area. This affords excellent drainage for the entire area, including the tracks. Three

parallel tracks enclose this area. These tracks are joined at each end and connect directly with tracks entering and leaving the eastbound freight yard. This permits cars of scrap to enter the reclamation area with the current of traffic while cars loaded with scrap for sale leave the area in the There are no bins or platforms on this dock. All miscellaneous scrap arrives in open top cars. These cars are all received on the track nearest the Eola yard and are unloaded on the day of their arrival. This material is then simply sorted on the ground in conveniently located piles, each pile



Typical Details Showing the Construction of the Reclamation Plant

same way. Reclaimed material may be handled without interfering with the movement of scrap.

The scrap dock is situated midway in the reclamation area, comprising a strip of land 90 ft. wide and 1,300 ft. long between the two parallel tracks nearest the Eola yard. containing material of a certain classification. Thus, in the vicinity of these large piles of miscellaneous scrap which have been or are being worked over, will be found a pile of forgings, a pile of bolts, a pile of spikes, a pile of brake beams, etc., as shown in the illustration. These piles are

formed independently of the location of the track and may be found in varying numbers throughout the yard, depending upon where the scrap gangs are employed. After having been sorted out, the several piles of material of any one classification are then available for loading directly into an outgoing car or for carriage to the reclamation plant, depending upon whether they constitute scrap for sale or

A View of the Scrap Dock from One of the Office Windows, Showing a Crane Filling the Spike Hopper

reclaimable material. The loading is not done on the tracks upon which scrap is received, the practice being instead to keep the scrap moving in one direction only.

Twin Cranes Are the Largest Known

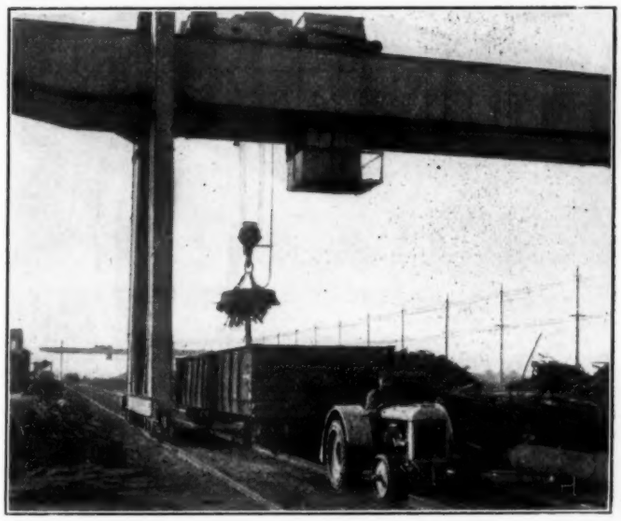
All unloading and reloading of scrap cars as well as all other handling of material on the docks is performed by two electrically-operated traveling gantry cranes which are believed to be the largest of their kind. The runways are

The Rivet Breakers Are in Constant Use

carried on concrete footings curved up at each end to avoid derailments. Each crane has a clear span of 105 ft. between supports and 23-ft. extensions at each end, the extension on the reclamation plant side reaching entirely over the platform to the wall of the building. Hoisting is accomplished at the rate of 70 ft. per min., by a 15-ton hook, a 45 hp. motor furnishing the power. Ordinarily this hook carries an electric magnet. There is also a 5-ton auxiliary hook which has a hoisting speed of 140 ft. per min., the latter being operated by a 20 hp. motor. These hooks are suspended from the traveling trolley and have a total lift of 27 ft. 3 in., which is ample for clearing any obstacle or accomplishing any sort of unloading. The bridge travel or, in other words, the crane travel, is 350 ft. per min., measured from a dead stop, an 85 hp. motor furnishing the power. The trolley travel is also 350 ft. per min. All of the movements of the crane are controlled independently of each other from a bridge platform suspended from the traveling trolley, where the crane operator has a clear view of the entire area, including the movements of an assistant who remains on the ground.

Cars Emptied on One Track, Loaded on Another

The cranes eliminate practically all manual handling of materials during loading and unloading. Each crane can unload or load up to 12 cars of scrap per day, in addition to other work required. It is not the practice to carry loads up and down the dock since this is considered neither safe for the men working on the dock nor economical. Instead, when unloading scrap it is the practice to dump the material in the area opposite the cars by keeping the crane in one position, while in loading out scrap (which work is confined to the track on the other side of the dock), it is the



Spotting of Cars for Loading Out Is Done by a Fordson Tractor

practice to start an empty car at the upper end of the dock and spot it successively opposite the piles of scrap to be loaded, using a Fordson tractor for the purpose. When the tractor is not required to serve the cranes in this manner it is employed in other work around the reclamation plant.

In addition to the crane the scrap dock is equipped with five rivet breakers and three oxy-acetylene welding outfits, all mounted on warehouse trucks for ready transfer about the yard. The air for this equipment is obtained from a three-inch line extending along the dock on the reclamation plant side and affording outlets every 50 ft. Eventually electric welding outfits will be used on the dock, which will be operated by current obtained from a line already installed. In the middle of the scrap dock, directly in front of the reclamation plant, are a bolt straightener and shear, to which all rods and bolts of any length, sorted out for reclamation, are brought preparatory to threading in the reclamation plant. These are the only two machines at present in the scrap dock. The carriage of iron to and from these machines is accomplished by the crane magnet.

Building of Fireproof Construction

The reclamation plant proper consists of two buildings, each occupying a strip of ground immediately south of the

scrap dock. The main building is midway between the ends of the scrap dock and for the most part consists of a one-story brick structure 50 ft. wide and 300 ft. long, having a gable roof supported on steel trusses and covered with cement tile. This roof allows 12 ft. of headroom in the building. The east end of the building is partitioned off for a blacksmith shop and has a cinder floor. The remainder of the building is floored with six inches of concrete, reinforced with wire. This floor is on the same level and is built contiguous with the concrete platform, which entirely surrounds the building, providing a 16 ft. platform on the side next to the scrap dock, a 10 ft. width on the rear side of the building and 100 ft. at each end. This platform is sloped to several drain holes, all connected to a common tile line. There are 14 doorways to this building, 6 doorways 7 ft. in width on each side and a 10 ft. doorway at each end. The openings at the end and four of the openings on each side are protected by sliding doors of corrugated steel and asbestos while the remaining two openings on each side have steel rolling doors. The window areas are fitted with steel sash and wire glass, with pivotal sash in each of the large windows for ventilation. There are three 24 in. ventilators in the roof above the blacksmith shop.

Entire Yard Visible From Office

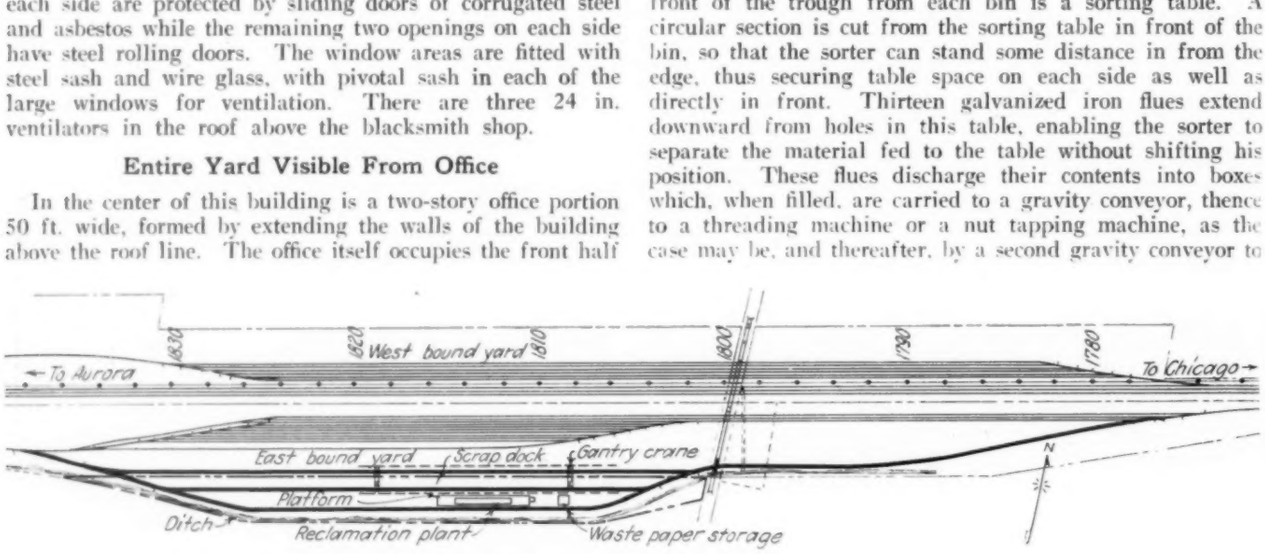
In the center of this building is a two-story office portion 50 ft. wide, formed by extending the walls of the building above the roof line. The office itself occupies the front half of the second story of this section of the building. This room is plastered and is unusually well lighted by four windows in the front and one window at each side. This arrangement is of particular interest by reason of the unobstructed view over the entire scrap dock, including the front and end platforms of the building, and the several tracks. The office is entered from a hallway reached from the first floor by a steel staircase and is equipped complete with oak furniture, steel filing cabinets, a drinking fountain and private toilet facilities. Sewage from the latter is disposed of in a septic tank located near the plant.

The other room on the second floor, which is also entered from the hallway, is a locker room for the plant workers. It occupies the rear portion of the second floor and contains lunch benches and steel lockers. On the first floor directly beneath the office are washroom and toilet facilities for the use of the employees, while below the first floor is a basement. The heating plant, consisting of two boilers, occupies the front of the basement, bringing the coal bin directly below two trap doors in the reclamation platform. The basement also includes a large storage room for rubber goods. A metal lined chute provides communication between this room and the rear platform. The walls and floor of the basement are concrete.

The other building included in the reclamation unit consists of a one story 50 ft. by 50 ft. structure, also of brick, located about 100 ft. east of the reclamation platform where waste paper, old hose and similar bulky material is stored and baled. This building and the main building are electrically lighted and steam heated. The water supply is obtained from a six inch well 175 ft. deep, located at the rear of the reclamation plant, where an automatic electric pressure system is installed.

Gravity Process of Sorting Bolts and Spikes

While much work remains to be done before all of the equipment is installed and present methods of operation are purposely in the formative state, the present operations are conducted with marked efficiency. This is especially noticeable in the reclaiming of bolts and spikes. One of the photographs shows two elevated hoppers next to the wall, facing the scrap dock. One of these bins is for spikes and the other for bolts, nuts, washers, etc. Each bin has a sharply sloping bottom and is lined with metal for feeding the contents into the building by gravity. They are filled by the electric magnet. Inside the building and directly in front of the trough from each bin is a sorting table. A circular section is cut from the sorting table in front of the bin, so that the sorter can stand some distance in from the edge, thus securing table space on each side as well as directly in front. Thirteen galvanized iron flues extend downward from holes in this table, enabling the sorter to separate the material fed to the table without shifting his position. These flues discharge their contents into boxes which, when filled, are carried to a gravity conveyor, thence to a threading machine or a nut tapping machine, as the case may be, and thereafter, by a second gravity conveyor to a trailer truck where they are boxed and labeled for shipment. The same process is followed in reclaiming the spikes which are first sorted into two grades, No. 1 for use in branch line tracks, and No. 2 in industry tracks. These spikes are straightened with air operated spike hammers before kegging. The outstanding feature of this process is that the material does not touch the floor from the time it is dumped in the bins until it is loaded in a car or stored.



A Map of the Reclamation Area Showing Its Relation to the Freight Yard

To facilitate the loading of this and other reclaimed material and also for the receipt of material in box cars the track at the rear of the plant is depressed to bring the loading platform car door high. At all other points the platform is on a level with the tracks and scrap docks, except at the blacksmith end of the platform where the roadway is depressed to bring the wagon boxes of highway vehicles flush with the platform.

Material Reclaimed Only to Fill Orders

Separate sections of the floor in the reclamation plant are allotted to tinware, valves and miscellaneous items warranting reclamation. As received from the scrap dock or directly from box cars at the plant, this material is sorted out and neatly piled on commodious steel racks preparatory to repair. In this work the unit system of piling and stacking prevails to afford ready inventory. Tinware and valves are also repaired here and, as in the case of all other material reclaimed, orders are made for repairing only when a certain kind of material is actually needed for stock. In other words, nothing is reclaimed unless there is immediate use for it. It

is also planned to mount all air, steam and signal hose at Eola. All scrap hose will be dismounted, the fittings reconditioned and new hose mounted on the second-hand fittings.

While the above work constitutes the major part of the operations carried out in this section of the building the facilities in the blacksmith shop end are adapted for the repair of small locomotive and car forgings, such as brake rigging, coupler lifters, etc. The equipment for this purpose consists of a 500-lb. hammer, six or eight blacksmith forges, an oil tempering furnace and two straightening plates, the hammer and furnaces being independently controlled by automatic electric push buttons. The air for the blacksmith shop and for operations elsewhere in the building and on the scrap dock is obtained from a Worthington electrically-operated air compressor unit of 300 cu. ft. capacity, located in the building. A further accessory of the blacksmith shop is a monorail craneway which extends from the edge of the platform on the scrap dock side through one of the doorways and out the end of the building.

Tools Repaired at Shop Points

No attempt is made to repair tools at Eola since such equipment is repaired at the several shop points under the direction of the local stores which receive such tools in exchange for new ones. Arrangements similar to those in vogue at Havelock, Neb., and other points have been made, however, for the reclaiming of frogs and switch points at the Eola plant, which work will be done on the scrap dock, also for the manufacture of all cattle guards and right-of-way gates from old material.

As stated previously, all waste paper, scrap hose, rags, etc.,

A View of the Scrap Dock Where Scrap Is Being Sorted Out in Separate Piles

are stored in the annex. This building has a loading platform adjacent to the depressed track and is equipped with an electrically operated baling machine for the handling of paper. Aside from reducing the fire hazard of the paper while in storage, this machine permits the loading into one car of an amount of paper which, in the unbaled condition, would require from three to five cars.

Cost of Handling Scrap Reduced

Prior to commencing operations at this plant over 200 cars of scrap had been dumped on the dock and while this is much in excess of the quantity which will be allowed to accumulate normally, no trouble was experienced in its handling. The average number of men employed in the scrap dock has been 55, which is only about half the number required prior to the completion of the scrap dock. This represents a saving of $175 a day at present wages or more than $50,000 a year in scrap handling alone.

One feature of considerable importance in the operation of the plant is the conducting of all operations, both in the scrap handling and reclaiming, in such a way as will afford the accurate determination of costs. The principal factor in accomplishing this lies in reclaiming the material only as orders are placed for it. It has one officer in charge of the scrap dock and one in charge of reclamation. Consistent with this plan the plant has its own stockbooks and issues an inventory of all reclaimable material to the general stores

The Bolt Shear Is Centrally Located

semi-monthly, from which the general store is able to issue requisitions for reclaimed material without confusion.

The work at Eola is organized on a piece work basis according to a plan whereby each group of men employed in a certain class of work is compensated according to production. At the present time practically all of the employees are Mexicans for whom boarding cars have been provided within easy walking distance of the yard. It is the plan, however, to secure a better grade of labor for the reclamation work since employees can readily establish homes in Aurora.

The reclamation plant was built by the building department of the Chicago, Burlington & Quincy, under the direction of A. W. Newton, chief engineer and W. T. Krausch, engineer of buildings, Chicago, and is operated under the supervision of J. G. Stuart, general storekeeper.

Competitive Bidding for Securities Again Suggested

WASHINGTON, D. C.

IN AUTHORIZING an issue of $3,000,000 of Union Pacific equipment trust certificates which the railroad had arranged in advance to sell to Kuhn, Loeb & Co., at 93.94 and accrued dividends, the Interstate Commerce Commission, Division 4, has again called attention to the question "as to whether carriers should endeavor to sell securities or certain classes of securities after something in the nature of a general invitation for bids, rather than to a particular banking house or distributor with which the carrier has established a continuing fiscal relation." The question was previously raised in the case of a bond issue of the Chicago Union Station Company, in which the commission required

that part of the bonds be sold on competitive bids, and recently in the case of a Norfolk & Western issue of equipment trust certificates the commission commended the carrier for obtaining competitive bids and expressed the hope that its example might be followed by others. Also in authorizing an issue of $6,600,000 of Southern equipment trust certificates, which had been sold in advance subject to the approval of the commission, to Drexel & Co., at 97.25 and accrued dividends, the commission's decision, issued two days after that in the Union Pacific case, called attention to its expressions in the Union Pacific decision regarding the method which the company proposed to follow in the sale of the securities. After calling attention to the fact that the Union Pacific expects to sell the certificates to Kuhn, Loeb & Co., which had offered the price of 93.94, the commission's report says:

"It does not appear that any effort was made to obtain a bid from another house. However, the price, judged by market conditions, appears favorable to the company and we, therefore, give our approval to the proposed sale. It may well be that the terms upon which these certificates are to be sold are more favorable to the carrier than would result from a public offering. Nevertheless, consideration should be given to the proper practice generally to be followed, particularly with respect to securities of the class here involved.

Mindful of Arguments Pro and Con

"We are mindful of the arguments for and against the different methods of marketing railway securities. It is not our present purpose and perhaps not our function to require the observance of any particular method in railway financing. New financing or refunding operations involving large amounts may require methods different from those where relatively small amounts are involved. Small issues of bonds or equipment certificates might be handled in the open market and by independent bidding when such method would be inappropriate for large issues or securities of a different class. Equipment trust obligations enjoy certain characteristics which make for stability in an exceptional degree. They enjoy direct lien on equipment purchased with the investors' money and find ready market among individuals and institutions which desire securities of particular maturities. They are not involved with other existing issues and do not require the determination of seniorities on account of prior mortgages. Rolling stock is usable not only on the lines of the particular railway purchasing it, but if need be, it finds use on other lines. There is little doubt but that any carrier of good credit can sell an issue amounting to several million dollars of equipment-trust certificates at desirable prices. Such certificates it would appear could frequently be sold direct in large blocks to important institutions.

"It is vitally necessary that the market for railway securities be widened. Certain strong industrial corporations use the services of important banking houses for placing their larger issues of securities but do not feel it necessary to market in this manner all of the securities which they may offer to the public. Experience seems to have indicated that the strong banking houses are willing to handle large industrial issues which are attractive, whether or not the same banking houses have handled smaller issues of the same corporations. One of the unfortunate impressions regarding the railroads at the present time is that they are unduly dependent upon financial institutions upon which they have been in the habit of relying. Anything that would result in removing this stigma, whether deserved or undeserved, would be a beneficial step for the carriers, the banking houses, and the public. It seems desirable that equipment-trust securities in particular should receive consideration in this connection and that the carriers should give serious thought to the marketing of these, and perhaps other securities, on a competitive basis."

Recovery of Excess Income

WASHINGTON, D. C.

REGULATIONS for the reporting and payment of "excess" net railway operating income under the provisions of section 15a of the interstate commerce act for the year 1923 have been issued by the Interstate Commerce Commission in a form somewhat similar to the rules issued for previous years except that this time the commission has prescribed forms, stated in exhibits A, B, C, D and E, in its order, to be followed substantially in the rendering of the reports. At the same time the commission announced that, pursuant to a ruling by the comptroller general of the United States, interest on amounts of excess railway operating income payable to the United States under the provisions of section 15a will be required at the rate of 6 per cent beginning four months after the termination of the period for which said excess income is computed.

The first Class I carrier to make payment to the commission under the recapture clause of section 15a is the Richmond, Fredericksburg & Potomac, which on April 3 paid to the commission $169,343 as one-half of its excess for the calendar year 1922, as shown by preliminary computations based upon a valuation placed by the carrier.

The rules issued by the commission require each carrier subject to section 15a to file on or before May 1 a report of the value of the railway property held for and used by it in the service of transportation and of the net railway operating income or deficit therein derived from the operation of such property. In cases where two or more carriers constitute a group under common control and management and are operated as a single system, the report is to be made for the system as a whole, irrespective of the separate ownership and accounting returns of the various parts of such system, and in addition the system report shall include separate schedules in behalf of each operating carrier included in the report.

The value is to be computed upon such basis as by the carriers is deemed equitable and in accord with the facts. Remittances, pursuant to the requirements of the section, are directed to be made concurrently with the report to the secretary of the commission.

The ruling of the comptroller general regarding the payment of interest was made in response to an inquiry by the chairman of Division 4 of the commission as to the power of the commission to collect interest on amounts due by carriers on the recoverable excess of net railway operating income of delinquent carriers, and if so, from what date and at what rate. The comptroller general replied under date of February 19 in part as follows:

"The law imposes upon the commission the duty of collecting the amount of excess income payable into the general railroad contingent fund, prescribes the time within which such amount is to be paid by the carrier and specifically directs the commission to prescribe such reasonable terms and conditions as it may find necessary in connection with the making of such collections. These provisions of the law would appear to authorize and empower the commission to prescribe regulations providing for the collection of interest on amounts not paid within the time fixed by law for such payments. Questions as to the rate of interest and the date from which it should be computed are for determination by the commission within the scope of the authority vested in it under the law. Matters for consideration in determining the rate of interest to be charged the delinquent carriers are the rates charged on loans made from the general railroad contingent fund and the necessity for charging interest as a means of effecting correct and prompt returns by the carriers. The time allowed in the statute, to wit, within four months from the close of the period covered by the computation to be made by the carrier under rules and regulations prescribed by the commission, would appear to be for consideration in determining the date from which the interest is to be charged. Any reasonable regulations the commission may prescribe requiring payment of interest by delinquent carriers, whether such delinquency arises from delay in making returns or from incorrect returns, would be regarded by this office as within the scope of the powers conferred upon the commission under the law."

What Is Cost of Freight Train Delays?

Committee of Signal Section, A. R. A. Analyzes Charges and Fixes Average at $21.07 per Hour

THE cost of a freight train "delay" hour was tentatively placed at $21.07 by the Committee on Economics of Railway Signaling of the Signal Section, A. R. A., following a study of freight train delays, the results of which were incorporated in a report presented at the convention held in Chicago on March 13 and 14. In arriving at this cost the committee considered only those unit costs which are directly affected by train operation. Average units costs were used by the committee in this calculation although any road which desires to make a similar study of its train operation should substitute its own costs. Having established this cost of a freight train delay hour the report shows that if 1.25 hrs. of delay can be eliminated on a line with 10 freight trains each way per day a saving of $192,264 will be made in a year.

Cost Items of Operation Considered

In beginning its study the committee divided the total operating expenses for freight train service on Class I roads during 1922, by the freight train hours, which gave an approximate cost of $64 per freight train hour. The committee recognized that this figure included many items which would not be directly affected by a reduction of train delay; therefore in order to establish some basis on which the savings produced by the elimination of delays could be figured, a start was made by including only such items as are directly affected by a reduction in train delay. As a result only six items, i. e., locomotive repairs, enginehouse expense, fuel and other supplies and the wages of enginemen and trainmen are considered by the committee in its calculations as being affected by a reduction in road hours of freight trains. The average unit costs of these items per freight train mile for the Class I roads, as set forth in the report of the Bureau of Statistics of the Interstate Commerce Commission for 1922, are inserted in column c in Table I as a basis for the calculation, the I. C. C. account numbers being shown after each item in the table. In 1922 the average freight train load on the Class I roads was 1,466 gross tons or 677 net tons with 38.5 cars. The average train speed was 11.1 miles per hour.

The problem confronting the committee was to use the I. C. C. unit costs per freight train mile as a basis for the computation of the costs per freight train hour. In Table I, column c lists these unit costs for each of the six selected items per train mile. To determine the cost per freight train hour at a speed of 11.1 miles per hour, (the average speed for freight trains on Class I roads in 1922) each item in column c was multiplied by 11.1 miles per hour entered in column d. At a speed of 11.1 miles per hour, the trip of 125 miles is covered in 11.25 hrs. Therefore by multiplying the value in column d (cost per freight train hour) by 11.25 hrs., the product (cost per trip of 125 train miles) is secured and entered in column e. The total cost of the six items selected gives $1.735 per freight train mile, $19.25 per freight train hour, and $216.59 per freight train run of 125 miles at 11.1 miles per hour.

The committee then undertook to determine what reductions could be effected in these costs by the elimination of 1.25 hrs. delay. The experience of roads equipped with automatic block signals has shown that when trains are operated by signal indication, it is possible to effect a saving in avoidable road delays of at least 1.25 hrs. on a 125 mile run on a single track division. If further advantage is taken of remote operation of passing track switches and elimination of written train orders, thereby eliminating further unnecessary slowing up and stopping of trains, additional savings in time are made possible. In this study road delays have been reduced from 3.75 hrs. to 2.5 hrs. while the running time of 7.5 hrs. remains the same. The speed in motion would, of course, be the same (16.7 miles per hour), but the average speed, between terminals, taking into account the reduction of delays, would be increased from 11.1 to 12.5 miles per hour.

TABLE I—SAVINGS IN SELECTED EXPENSE ACCOUNTS, UNIT COSTS, BY REDUCING FREIGHT TRAIN ROAD DELAY 1¼ HOURS ON A ROAD TRIP OF 125 MILES

Selected expense accounts and account numbers (I. C. C.)	(a) At 11.1 miles per hour Cost per Freight train mile (c)	Freight train hour (d)	125 train miles in 11.25 hours (e)	(b) At 12.5 miles per hour Cost per Freight train mile (f)	Freight train hour (g)	125 train miles in 10 hours (h)	Per cent of saving
(i) Locomotive repairs (308 and 311)	$0.425	$4.718	$53.08	$0.425	$5.308	$53.08	....
(j) Engine-house expense (400)	.101	1.118	12.58	.101	1.258	12.58	....
(k) Enginemen (392 and 393)	.255	2.831	31.85	.218	2.731	27.31	14.00
(l) Trainmen (401)	.294	3.259	36.66	.249	3.121	31.21	14.88
(m) Fuel (394, 395 and 396)	.557	6.183	69.56	.508	6.346	63.46	8.77
(n) Other supplies (397, 398 and 399)	.103	1.143	12.86	.094	1.173	11.73	8.77
Total costs selected expense accounts	$1.735	$19.252	$216.59	$1.595	$19.937	$199.37	7.9
(o) Car repairs (314)	$0.730	$8.103	$91.16	$0.656	$8.204	$82.04	10.0
Total costs including car repairs	$2.465	$27.355	$307.75	$2.251	$28.141	$281.41	8.55

Total costs at 11.1 miles per hour, without car repairs	$216.59	With car repairs	$307.75
Total costs at 12.5 miles per hour, without car repairs	199.37	With car repairs	281.41
Saving in unit costs by reducing freight train road delay 1¼ hours on a road trip of 125 miles, without car repairs	$17.22	With car repairs	$26.34
Per cent of saving, without car repairs	7.9	With car repairs	8.55

Reduction in Unit Costs Through Decreased Delay

Since the costs shown in column c, d and e are based on a speed of 11.1 miles per hour the committee undertook to establish similar unit costs on the basis of an increased average speed of 12.5 miles per hour. It would seem evident that there should be a reduction in the cost of locomotive repairs on account of the reduction in road delays and the number of train stops. However, to be conservative, the committee considered the cost of locomotive repairs to be

the same for both speeds and used the same figure, $53.08, in column h as in column e. Enginehouse expense was likewise considered as not affected by the speed of train movement, and the cost $12.58, was fixed as the same in column h as in column e. The remaining items are, however, affected by a reduction in road time and will be considered in detail.

It should be kept in mind that the total train hours are to be reduced from 11.25 hrs. to 10 hrs. while the terminal time for enginemen and firemen will remain at 1 hr., therefore the total crew hours for these men will be reduced from 12.25 hrs. to 11 hrs. This at once reduces the overtime from

Table II—Crew Hours for Enginemen and Firemen

Items	Average speeds: 11.1 m.p.h. Hours	12.5 m.p.h. Hours
Train hours (terminal to terminal)	11.25	10.00
Terminal hours (initial and final)	1.00	1.00
Total crew hours (actual)	12.25	11.00
Less "Basic day" (125 miles ÷ 12.5)	10.00	10.00
Overtime hours (actual)	2.25	1.00
Plus one-half	1.13	.50
Overtime payroll hours (1½ times actual)	3.38	1.50
Plus "Basic day"	10.00	10.00
Total payroll crew hours	13.38	11.50
Time saved	....	1.88
Per cent	....	14

2.25 hrs. to 1 hr. which, when figured at time and one-half, gives 13.38 total payroll crew hours for the speed of 11.1 miles per hour as compared with 11.50 payroll hours for the speed of 12.5 miles per hour. This represents a saving of 1.88 hrs. or 14 per cent, as explained in detail in Table II. Therefore the cost of $31.85 for enginemen's wages for the 125 train miles in 11.25 hrs. as listed in column e is reduced 14 per cent or to $27.31, which amount is entered in column h as the cost of enginemen's wages for the 125 train miles in 10 hrs.

Consideration of the savings to be effected in trainmen's wages shows that if 1.25 hrs. of road delay are eliminated, the saving in the overtime equivalent would be 1.88 hrs. and the total payroll hours would be reduced from 12.63 to 10.75 hrs., a reduction of 14.88 per cent as shown in Table III.

Table III—Crew Hours for Trainmen

Items	Average speeds: 11.1 m.p.h. Hours	12.5 m.p.h. Hours
Train hours (terminal to terminal)	11.25	10.00
Terminal hours (initial and final)	.50	.50
Total crew hours (actual)	11.75	10.50
Less "Basic day"	10.00	10.00
Overtime hours (actual)	1.75	.50
Plus one-half	.88	.25
Overtime payroll hours (1½ times actual)	2.63	.75
Plus "Basic day"	10.00	10.00
Total payroll crew hours	12.63	10.75
Time saved	....	1.88
Per cent	....	14.88

Therefore the cost, $36.66, for trainmen's wages for 125 train miles at 11.1 miles per hour in column e is reduced 14.48 per cent and listed as $31.21 in column h as the cost of trainmen's wages for 125 train miles at 10 miles per hour.

It is considered that the locomotive is burning fuel for 3 hrs. terminal time, which, added to the running time of 11.25 hrs. at 11.1 miles per hr., equals 14.25 total locomotive fuel burning hours; while at a speed of 12.5 miles per hour only 10 train hours are spent on the road or a total of 13 fuel burning hours, a reduction of 8.77 per cent, as shown in Table IV. Therefore the cost of fuel for 125 train miles at a speed of 11.1 miles per hour, $69.59 in column e, is reduced by 8.77 per cent or to $63.46, which figure is entered in column h. The item headed other supplies, mainly water and lubricants, was also considered to be reduced in the same ratio.

The costs per freight train mile at 12.5 miles per hour, as shown in column f, are determined by dividing the cor-

Table IV—Fuel Burning Hours

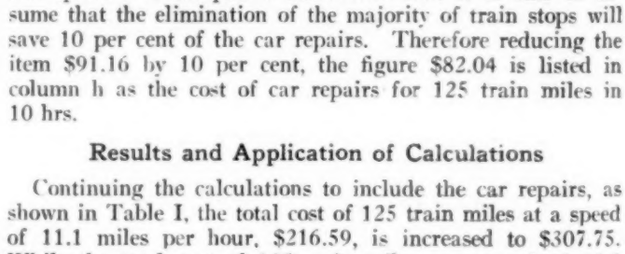
Items	Average speeds: 11.1 m.p.h. (a) Hours	12.5 m.p.h. (b) Hours
Train hours	11.25	10.00
Terminal hours	3.00	3.00
Total locomotive fuel-burning hours	14.25	13.00
Time saved	....	1.25
Per cent	....	8.77

responding value of each item in column h (the cost of 125 train miles in 10 hrs.), by 125 miles. The costs per freight train hour at 12.5 miles per hour, as shown in column g, are arrived at by dividing the values in column h (the cost of 125 train miles in 10 hrs.), by 10, the number of train hours in the run.

In addition to the six items included in the calculations as explained above, the committee proceeds to include a seventh item, car repairs. The cost of $0.73, listed in column c of Table I, is the I. C. C. unit cost for car repairs per freight train mile for Class I roads during 1922. For 125 train miles (in 11.25 hrs.) this amounts to $91.16 for car repairs. A reduction in the number of train stops and starts will reduce the wear and tear on equipment and thereby reduce the cost of repairs. The committee states that it is the opinion of competent authorities that it is fair to assume that the elimination of the majority of train stops will save 10 per cent of the car repairs. Therefore reducing the item $91.16 by 10 per cent, the figure $82.04 is listed in column h as the cost of car repairs for 125 train miles in 10 hrs.

Results and Application of Calculations

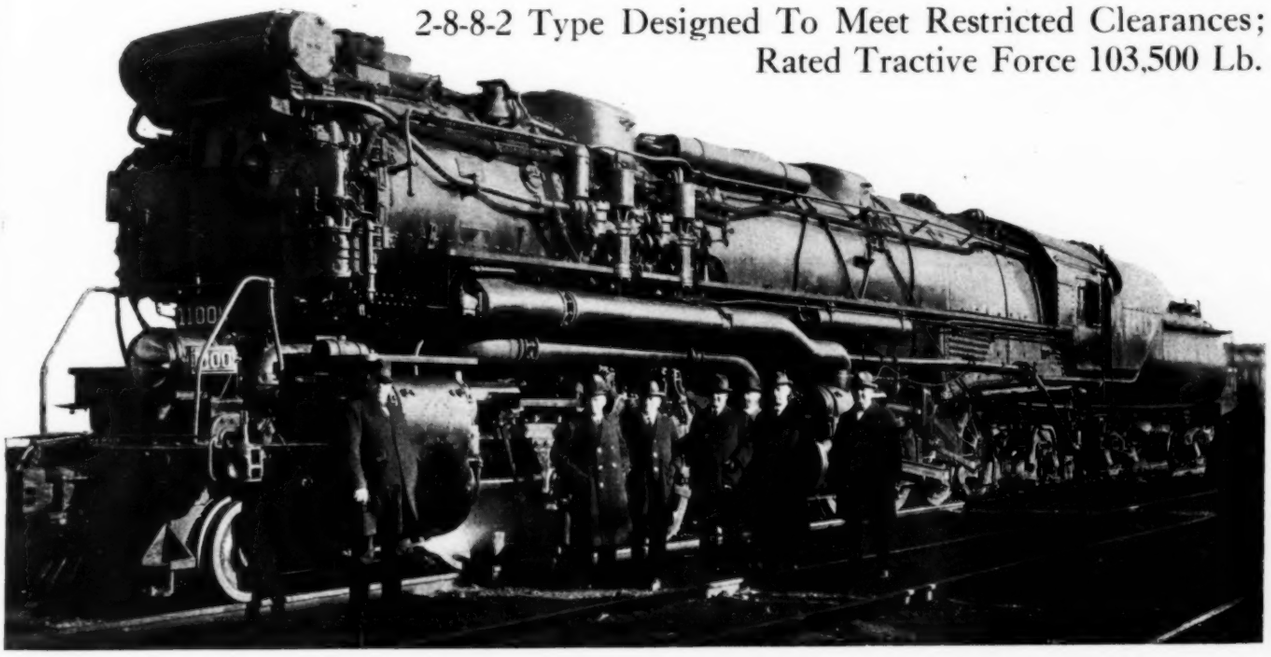
Continuing the calculations to include the car repairs, as shown in Table I, the total cost of 125 train miles at a speed of 11.1 miles per hour, $216.59, is increased to $307.75. While the total cost of 125 train miles at a speed of 12.5 miles per hour, $199.37, is increased to $281.41. The difference between $307.75 and $281.41 is $26.34, the saving effected by reducing freight train road delay 1.25 hrs. on a 125 mile trip, which is at the rate of $21.07 per hour. The savings produced by eliminating the 1.25 hrs. delay on 20 trains per day at $21.07 an hour would amount to $526.75 a day or $192,264 per year.



Making a Timetable on the B. R. & P.

Simple Mallets for the Chesapeake & Ohio

2-8-8-2 Type Designed To Meet Restricted Clearances; Rated Tractive Force 103,500 Lb.



Inspecting One of the New Mallets: W. J. Harahan, President; G. B. Wall, Vice President; R. N. Begien, Vice-President (Operation); J. B. Parrish, General Manager; L. B. Allen, Superintendent, Maintenance-of-Way; C. W. Johns, Chief Engineer, and G. H. Langton, General Master Mechanic.

THE CHESAPEAKE & OHIO has employed Mallet locomotives of the 2-6-6-2 type for a number of years to handle practically all of the freight tonnage on the main line through the Allegheny Mountains. To permit a material increase in the train loads, this road is now receiving from the American Locomotive Company 25 locomotives of the 2-8-8-2 type, which involve a number of unusual features in their design. As these locomotives are placed in service it is planned to extend the use of the lighter Mallets to the lower grade portions of the line, where very heavy coal trains are successfully handled with relatively long runs, so that the increased tonnage through the mountains made possible by the use of the new locomotives may be hauled through to the seaboard in solid trains without breaking and reassembling.

The tunnels and restricted clearances on the C. & O. have prevented the use of the heavier type articulated locomotives of the usual design. The problem presented was therefore that of designing as powerful a locomotive as possible without exceeding the clearance limitations. As space was not available for compound cylinders, the very unusual practice of making all four cylinders high-pressure, single-expansion was adopted. While the almost universal practice in Mallet locomotives is to use double expansion, the Pennsylvania has had in operation for several years one large 2-8-8-0 simple Mallet with limited cut-off and a few small simple Mallets have been built at various times for export or industrial service. This is the first instance, however, in which any considerable number of large articulated locomotives of the single-expansion type have been built.

The desire to operate them at higher running speeds than experience has shown to be practical for heavy compound articulated locomotives, was another consideration which influenced the design. An increase in both train loads and operating speeds was necessary if the maximum gain in traffic capacity was to be obtained.

The new C. & O. engines, known as Class H-7 or Chesapeake type, and numbered from 1100 to 1124, are remarkable for their power, large boilers and compact, carefully worked out design. The maintenance of Mallet locomotives used in heavy service has always been a difficult problem. This has been met on the C. & O. by organizing special repair gangs at all terminals and giving prompt attention to the features requiring attention without postponing work until the locomotive was removed from service for extensive repairs. Having had an extended experience with a considerable number of Mallet locomotives, it naturally followed that in making an entirely new design, careful attention was given to all details so as to reduce attention and maintenance expenses to the lowest point possible.

These locomotives are practically two Consolidation engines with one boiler. They measure 109 ft. 3⅜ in. from the front of the engine to the rear of the tender and have a total weight of 775,000 lb. in working order with the tender loaded. The distribution of the weight is as follows: 32,000 lb. on the front truck; 251,500 lb. on the forward set of drivers; 239,500 lb. on the second set of drivers, and 42,000 lb. on the trailing truck, making the total weight of the engine alone 565,000 lb. The engine, exclusive of the tender, is 70 ft. 1⅝ in. long. The driving wheel base of each unit is 15 ft. 9 in., the engine wheel base is 58 ft. 1 in., and the total wheel base of the engine and tender is 98 ft. ⅜ in. All four cylinders are 23 in. in diameter with a 32-in. stroke. The driving wheels are of 57 in. diameter and the rated tractive force of the locomotive is 103,500 lb. They are designed to operate on 20-deg. curves and on grades up to 1½ per cent.

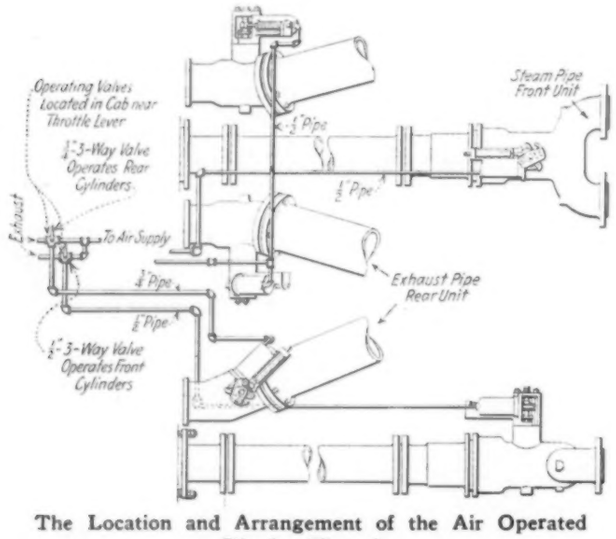
The Class H-6, compound 2-6-6-2 type, Mallets hitherto used on the C. & O., weigh 441,000 lb. of which 368,500 lb. are on the drivers. The driving wheel base of each unit is 10 ft., the engine wheel base is 48 ft. 10 in. and the total wheel base of the engine and tender. 86 ft. 11¾ in. The cylinders are 22 in. and 35 in. by 32 in., the driv-

ing wheels 56¼ in. in diameter, the steam pressure 200 lb. and the rated tractive force 94,000 lb. simple, and 74,200 lb. compound.

Careful Attention Given to Design and Capacity of the Boiler

The boilers of the new Class H-7 Mallets are the longest ones ever built at the Schenectady plant of the American Locomotive Company. They are of the straight top type and with the exception of the fireboxes, are built entirely of Lukens steel plates. The length from the front of the smokebox ring to the back end of the mud ring is 56 ft. 11⅛ in. The shell of the boiler consists of five courses, not including the smokebox or the firebox wrapper sheet. The inside diameter of the first course is 92 in. and the outside diameter of the course back of the dome is 104 in. diameter. The photograph of the locomotive and the clearance diagram show that every available inch was used without exceeding the restrictions. The dome is only 5½ in. high and the stack extension is but 11½ in. The working pressure is 205 lb. per sq. in.

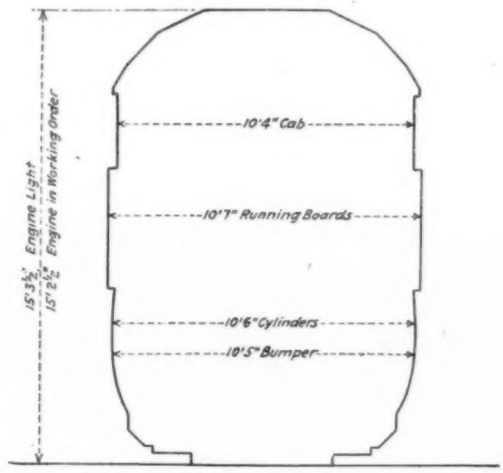
The wide firebox is 204⅛ in. long and 96¼ in. wide. It is fitted with a Gaines firewall and has a grate area of 112.9 sq. ft., 169 in. by 96¼ in., for burning soft coal. There is also a combustion chamber 69 in. long. Arch tubes are not used, although provision was made for their future application should this be found advisable. There are 278 tubes, 2¼ in. in diameter and 60 flues, 5½ in. in diameter, 24 ft. long. There is 6,443 sq. ft. of evaporative heating surface, of which 467 sq. ft. is in the firebox and 5,976 sq. ft. in the tubes and flues. The heating surface of the 60 units of the Type A superheater is 1,885 sq. ft. According to Cole's proportions, the rated cylinder horsepower is 3,902 hp. and that of the boiler 3,677 hp., or 94.2 per cent. This does not include any allowance for the effect of the Elesco feedwater heater, with which all these locomotives are being equipped.



The Location and Arrangement of the Air Operated Slipping Throttles

The firing is done with a Duplex stoker, which is here called on to perform what is probably the most strenuous work ever demanded of it. The estimated coal consumption at the rate of 3¼ lb. per cylinder horsepower is 12,682 lb. per hour or at the rate of 112.9 lb. per square foot of grate.

There is a large amount of welding on the boilers. The welded joints include the long seam between the crown sheet and the firebox side sheets and also between the combustion chamber and the firebox. At the joints the sheets are lapped and welded on both sides. At the junction of the combustion chamber and the firebox, a corrugation is provided to better care for the expansion at this point.



Restricted Clearance Lines to Which the C. & O. Mallet Design Was Required to Conform

The throttle is in the dome and is of the American Locomotive Company's design, top-lift with a pilot valve. The dry pipe is 9½ in. inside diameter. An unusual feature is that of the slipping throttle with a choke resembling a stove pipe damper in the rear unit exhaust pipes and the front unit steam pipe. These are operated by an air cylinder

TABLE OF DIMENSIONS, WEIGHTS AND PROPORTIONS

Railroad	C. & O.
Builder	Amer. Loco. Co.
Type of locomotive	2-8-8-2 Simple
Service	Freight
4 Cylinders, diameter and stroke	23 in. by 32 in.
Valve gear, type	Walschaert
Valves, piston type, size	12 in.
Weights in working order:	
On drivers	491,000 lb.
On front truck	32,000 lb.
On trailing truck	42,000 lb.
Total engine	565,000 lb.
Tender	210,000 lb.
Wheel bases:	
Driving, each	15 ft. 9 in.
Total engine	58 ft. 1 in.
Total engine and tender	98 ft. ¾ in.
Wheels, diameter outside tires:	
Driving	57 in.
Front truck	30 in.
Trailing truck	42 in.
Boiler:	
Type	Straight top
Steam pressure	205 lb.
Fuel	Bit. Coal
Diameter, first ring, inside	92 in.
Firebox, length and width	204⅛ in. by 96¼ in.
Combustion chamber length	69 in.
Tubes, number and diameter	278—2¼ in.
Flues, number and diameter	60—5½ in.
Length over tube sheets	24 ft.
Grate area	112.9 sq. ft.
Heating surfaces:	
Firebox and comb. chamber	467 sq. ft.
Tubes and flues	5,976 sq. ft.
Total evaporative	6,443 sq. ft.
Superheating	1,885 sq. ft.
Comb evaporative and superheating	8,328 sq. ft.
Tender:	
Style	Vanderbilt
Water capacity	12,000 gal.
Coal capacity	15 ton
Trucks	Four-wheel
General data estimated:	
Rated tractive force, 85 per cent	103,500 lb.
Cylinder horsepower (Cole)	3,902 hp.
Boiler horsepower (Cole) (est.)	3,677 hp.
Speed at 1,000 ft. piston speed	31.8 m.p.h.
Coal rate per sq. ft. grate per hour	112.9 lb.
Weight proportions:	
Weight on drivers÷ total weight engine, per cent	86.9
Weight on drivers÷ tractive force	4.91
Total weight engine÷ cylinder hp	147.1

mechanism independently controlled by three-way air valves located in the cab.

The smokebox front end is in three sections, with the feedwater heater mounted on the top section. The lower sections are divided vertically and an 8½-in. cross-compound air compressor is mounted on each of these sections, which are arranged to swing out with the air compressor on Okadee hinges. A center plate is also provided which permits of access to the front end without disturbing the air compressors or the feedwater heater.

Carbon-vanadium steel is used for the main and side rods, the crank pins, the piston rods, the wrist pins, valve motion parts, and for the leading and trailing truck axles as well as for the driving axles. The piston is of forged steel. All driving axles are hollow bored. The main locomotive frames, manufactured by the Union Steel Casting Company, are of Vanadium cast steel and show average physical results as follows:

Ultimate tensile strength	81,682 lb. per sq. in.
Yield point	47,289 lb. per sq. in.
Elongation	25.2 per cent in 2 in.
Reduction of area	46.8 per cent

The leading truck is of the Commonwealth "Economy" constant resistance type. The trailing truck is of the Delta type. Engine truck, trailing truck and tender truck wheels are of forged steel, furnished by the Forged Steel Wheel Company.

The headlights, Pyle-National Type K-2, operated by a turbo-generator, are placed down near the bumper beams.

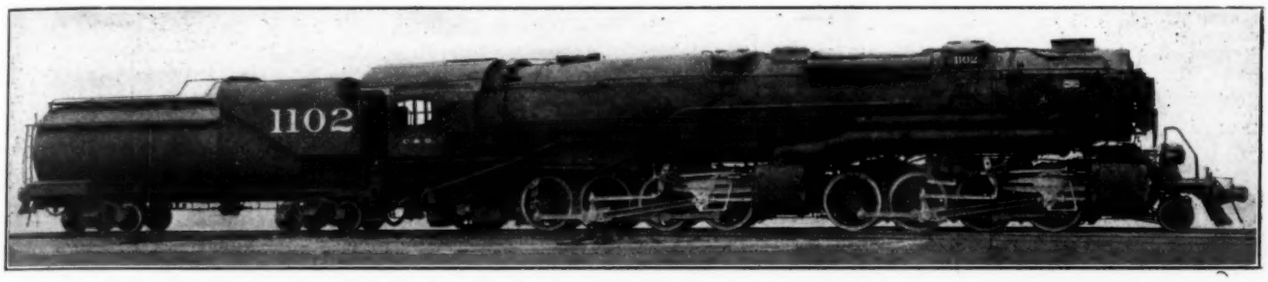
Ventilation Provided When Passing Through Tunnels

These locomotives will be operated through a number of tunnels, some of which are quite long. A noteworthy feature is the provision that has been made for the comfort of the enginemen while passing through these tunnels. As a result of extended tests made by the mechanical department of the C. & O., assisted by experts from the Bureau of Mines, Department of the Interior, two steel fan blowers made by the Buffalo Forge Company were installed under the cab deck, one on each side. They are driven independently by Pyle-National headlight turbines. The inlet air pipes lead back to the space between the engine and tender with the discharge pipes leading up into the cab. This arrangement provides a stream of comparatively pure air and at the same time reduces the temperature in the cab. As a further precaution, three gas masks are provided. These receive their air supply from the main reservoir. Moreover, the back boiler head is completely lagged down to the deck and all steam pipes in the cab are covered.

The tender is of the Vanderbilt type and holds 12,000 gal. of water and 15 tons of coal. It is mounted on a single-piece, cast steel frame. The trucks are of the four-wheel type with Andrew's cast steel side frames and cast steel bolsters furnished by the American Steel Foundries. The tender coupler is a Type D with 6-in. by 8-in. shank and 5¼-in. butt. The draft gear is a Miner A-18-S-2, with Farlow two-key attachments. A Franklin unit safety drawbar connects the locomotive and tender.

Among the special appliances not previously mentioned are: Alco, Type E, reverse gear; Hancock non-lifting Type K injectors having a capacity of 9,000 gal. per hour, and 3-in. check valves; three 3½-in. Consolidated safety valves, two open and one muffled; Okadee 2-in. Type FH blow-off cocks; Okadee WG 13 water gages; Franklin grate shaker and firedoor No. 8; Nathan eight-feed lubricator; Graham-White sanders; Detroit flange oilers; United States Metallic packings for piston and valve stem rods; Hunt-Spiller gun metal bushings for cylinders and valve chests; Barco flexible joints in air lines between engine and tender and screw type flexible joints in main reservoir pipes.

The general dimensions and proportions of these interesting locomotives are given in an accompanying table.



These C. & O. Mallets Have the Longest Boilers Ever Built by the American Locomotive Company

Revenue Freight Car Loading

WASHINGTON, D. C.

FREIGHT CAR LOADING continued to decline during the week ended March 29, when the total was again below that for the corresponding week of last year as well as slightly below that for the preceding week. The number of cars loaded with revenue freight on the railroads of the United States was 907,548, as compared with 936,274 in 1923 and 821,808 in 1922. While the decrease of 26,968 cars in coal loading as compared with the corresponding week of last year accounted for a large part of the reduction, there were also reductions in the loading of grain and grain products, livestock, coke, ore and miscellaneous freight. The loading of forest products increased 5,609 cars, and that of l.c.l. merchandise increased 15,898 cars. The Southwestern was the only district to show an increase as compared with last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING, WEEK ENDED MARCH 29, 1924

Districts	1924	1923	1922
Eastern	226,878	233,428	204,327
Allegheny	193,869	206,493	179,666
Pocahontas	36,659	37,525	37,212
Southern	146,835	148,869	130,079
Northwestern	113,847	114,000	98,185
Central Western	127,652	138,894	121,460
Southwestern	61,808	57,065	50,879
Total Western Districts	303,307	309,959	270,524
Commodities			
Grain and grain products	35,993	41,713	35,135
Livestock	28,612	31,097	25,947
Coal	154,680	181,648	185,521
Coke	12,489	15,742	9,214
Forest products	81,553	75,944	55,001
Ore	13,849	15,434	6,090
Mdse., L. C. L.	251,201	235,303	240,993
Miscellaneous	320,171	339,393	263,907
Total	907,548	936,274	821,808
March 22	908,651	916,818	837,241
March 15	916,953	904,116	815,082
March 8	929,505	905,344	820,886
March 1	945,049	918,624	793,115

Revenue car loadings in Canada in the week ended March 29 amounted to 57,845, a decrease of 1,735 from the previous

week. Grain and grain products fell off 1,034 cars and other commodities showed small variations. Compared with the same week last year the loadings were 11,469 cars greater, and the cumulative totals since the first of this year show a gain of 80,430 over the same period in 1923.

Car loadings in the week ended March 29 and the two previous weeks follow:

Commodity	March 15 Cars	March 22 Cars	March 29 Cars
Grain and grain products	7,702	7,466	6,432
Live stock	2,308	2,418	2,392
Coal	6,090	5,996	6,288
Coke	206	266	260
Lumber	4,573	4,081	4,068
Pulpwood	4,950	5,168	5,056
Pulp and paper	2,261	2,188	2,207
Other forest products	3,363	3,746	3,048
Ore	976	1,135	1,202
Merchandise L. C. L.	13,581	14,611	15,129
Miscellaneous	11,375	12,505	11,763
Total cars loaded	57,385	59,580	57,845
Total cars received from connections	39,279	37,680	35,149
Total cars loaded for corresponding week, 1923	46,961	47,248	46,376

State Commission Has No Power to Order Union Station

WASHINGTON, D. C.

ANOTHER important decision giving a broad construction to the powers of supervision over the activities of interstate railroads conferred upon the Interstate Commerce Commission by the transportation act was handed down by the Supreme Court of the United States on April 7, deciding that the Railroad Commission of California has not the power to order the Atchison, Topeka & Santa Fe, the Southern Pacific and the Los Angeles & Salt Lake to build a new union terminal in Los Angeles, abandoning their three existing passenger stations in connection with the removal of grade crossings, at a cost for the entire project of from $25,000,000 to $45,000,000. The decision by Chief Justice Taft affirms the judgment of the supreme court of California which had held that the order was beyond the power of the state commission because the subject matter was committed to the Interstate Commerce Commission by the Transportation Act of 1920. The lower court held that if the order had affected the elimination of grade crossings alone, it would have been valid, but that, associated as it was with the establishment of the union station, it must be annulled. The proceedings before the state commission were begun in 1916. Before the decision was reached the transportation act was enacted. In December, 1921, after two hearings, an amended order against the railways was issued by which they were required to remove certain grade crossings and to build a union terminal within a certain defined area in the city. The railway companies sought review of this order in the supreme court of the state and the cases were consolidated, later being brought to the Supreme Court of the United States by certiorari.

The order of the railroad commission, the court said, requires the abandonment of the passenger stations of the three railways. The Southern Pacific station is a comparatively modern depot and would be adequate for many years. Those of the other two companies are not adequate but they have ample ground upon which to construct suitable stations. The order required the removal from Alameda street of the main line of the Southern Pacific for three miles, permitting the use of its tracks in that street for switching during a few hours at night. The order also required that by viaducts over the river and over the Salt Lake and Santa Fe tracks on the river banks, grade crossings should be eliminated. The order further required that the three railways should purchase jointly land enough in an area reaching from Alameda street to the river and from Aliso street to Alhambra street to erect a suitable union station, to be situated somewhere near a square called the Plaza. The railways were directed to make such additions to, extensions of, improvements and changes in the existing railroad facilities of said companies as may be reasonably necessary and incidental to the use of the union passenger station. This would require the removal of the present station of the Southern Pacific from Fifth street toward the Plaza, at least half a mile, and the stations of the Santa Fe and the Salt Lake from First street on the river to the Plaza more than a quarter of a mile. The changes to be effected under the order would require, in the abandonment of the Southern Pacific main track on Alameda street for three miles, a joint use by the Southern Pacific of main tracks on the river bank with either the Salt Lake or the Santa Fe, or the construction of its own main tracks on one side or the other along the river bank. The main tracks of the Salt Lake must be extended across the Los Angeles river on a viaduct to the area selected for the union station. The main track of the Santa Fe runs along the river side of the selected area but an extension of its main tracks will have to be made to bring it into the new station. The order requires the joint use of land, tracks and terminal facilities valued at $28,050,691; the abandonment of three existing passenger stations of the railways as such and the ultimate capital expenditure for all recommendations of from $25,000,000 to $45,000,000.

The railroad commission in the supreme court of the state pressed the argument that in view of its finding that the union station was an indispensable element in getting rid of the grade crossings, it had the incidental right to order its building. The court rejected the argument. It said:

"that notwithstanding the views expressed by the Railroad Commission in its findings and conclusions in the proceeding herein presented for review, we can perceive no indispensable relation between the elimination of grade crossings and the establishment of union depot facilities, nor can we see an unsurmountable difficulty why jurisdiction over the matter of eliminating grade crossings may not be exercised in a proper case consistently, and it may be concurrently, with the exercise of the authority which is vested by the act of Congress of 1920 in the Interstate Commerce Commission over the subject of union terminal depot facilities."

The state supreme court thus modified the findings of the Railroad Commission in so far as they sought to tie the validity of its order establishing a union station to its unquestioned police power to regulate grade crossings in the interest of the public safety. "We avoid," the chief justice said, "any inquiry how far if, at all, the principle laid down in *Erie R. R.* v. *Board of Public Utility*, 254 U. S. 394, is qualified by the provisions of the Transportation Act. Our only question here is whether the power to direct a new union station with its essential incidents is committed exclusively to the Interstate Commerce Commission under the Act of 1920."

SHIP EARLY is the subject of the Illinois Central's latest advertisement in the newspapers along its line. In this advertisement attention is called to the fact that the railroads of the country last year moved the greatest volume of freight ever handled in any one year in their history and shippers and receivers never enjoyed more satisfactory service. The movement of freight was more evenly distributed than ever before. The maximum daily business, which was in October, was only 26 per cent greater than the minimum daily business, which was in December. If shippers who are in a position to pay for transportation requirements for the year will place their orders at once or as early as they can do so it is believed the railroads will be able to serve them even more efficiently this year. Every effort should be made to stabilize the movement of freight. It will pay shippers and receivers of freight of all kinds to move their commodities now, even if it should be necessary to store them upon delivery.

Hearings on the Railroad Labor Bill

Purpose Described as to Preserve "Economic Power" of Strike Threats

WASHINGTON, D. C.

HEARINGS on the Howell railroad labor bill before a sub-committee of the Senate Committee on Interstate Commerce were concluded on April 7 after the sub-committee had heard testimony in support of the bill by representatives of the national railroad labor organizations, its proponents, and in opposition to the bill on behalf of the railroads, the short lines, representatives of the independent organizations of railroad employees, including some of what are commonly known as "company unions," and the Railroad Labor Board. The bill was also opposed by the National Industrial Traffic League and in a statement filed with the committee by the United States Chamber of Commerce. A large part of the time of the hearings during the past week has been devoted to rebuttal testimony, first on behalf of the labor organizations in reply to the testimony of the railroad executives and then on behalf of the railroad executives in reply to charges made by the labor organizations.

N. I. T. L. Oppose Both Present Law and New Bill

J. H. Beek, executive secretary of the National Industrial Traffic League, was the first witness when the hearing was resumed on April 4. He read a statement outlining the position of the League as expressed in resolutions adopted almost unanimously at two annual meetings, that the Railroad Labor Board should be abolished and that Title 3, containing the labor provisions of the Transportation Act, should be repealed. From these resolutions, he said, it follows that the league is opposed to the provisions of the Howell bill and this position has been taken by the legislative committee of the league, although there has been no annual meeting since the bill was introduced. The opposition of the league to the Labor Board, Mr. Beek said, was expressed after the operation of the statute had been carefully studied. Among the reasons he gave were that the board is not a disinterested tribunal and that the present arrangement tends to substitute nationwide rules and scales which do not fit the conditions in various parts of the country.

That the board has failed to accomplish the good results its advocates promised for it, the league felt, was not necessarily the fault of the board, but is inherent in any scheme where the government undertakes to interfere in these matters. The proposed bill, in the opinion of the league, would give the labor organizations a stranglehold on the railroads and would probably result in increased wages and higher rates.

The league is in favor of broadening the arbitration law and authorizing the President to appoint special tribunals to investigate and make public their findings and recommendations in particular cases, but the legislative committee of the league has not yet worked out the details of this proposal. Mr. Beek said he had also received a telegram from the legislative committee of the Chicago Shippers' Conference Association asking him to represent it in opposing the Howell bill.

Richberg and Robertson Reply to Railroad Testimony

Donald R. Richberg, counsel for the Railroad labor organizations, made a statement in reply to the testimony of Hale Holden, chairman of the executive committee of the Association of Railway Executives, and of John G. Walber of the New York Central, saying that they had distorted the provisions of the bill. One of his principal points in answer to the railroads' objection to the proposed national boards of adjustment was that there was nothing in the bill to prevent agreements being reached between the managements and their employees locally without taking the questions to the national boards and he insisted that the fundamental principle of the bill was that as many disputes as possible should be settled in conference. The national boards, he said, are merely intended to represent an extension of the conference. He took the position that the railroads are inconsistent in opposing national adjustment boards, while advocating the retention of the labor board, which is a national organization. The objections made, he said, are based entirely on a misconstruction of the law, and he denied that the boards would involve great expense, because, he said, much of the expense and staff that are necessary to educate the laymen on a tribunal will not be necessary in the case of bi-partisan boards. The statement on behalf of the railroads that the bill would tend to bring about a closed shop, he characterized as an "exaggerated appeal to prejudice," saying that the labor organizations have never sought to maintain a closed shop.

The statements of the railroads that the national organizations in many instances do not represent a majority of the employees, he said, is founded only on the employees classed as "otherwise represented," which, he said, had been "herded into company unions and disfranchised." He referred to the figures presented by Mr. Walber showing the percentage of employees not represented by the national organizations as "dishonest" and representing "a deliberate attempt to deceive the committee." The real basis of the carriers' opposition to the bill, Mr. Richberg said, lies in their desire to maintain an instrument for the regulation of labor. He denied that the labor board constitutes any protection to the public, saying that the board would have no power whatever to suspend any wage increase agreed upon by the railroads and their employees, as the farthest the courts have gone is to say that the government can prescribe wages if there is failure on the part of the employers and employees to agree. The only reason the railroads have for desiring to retain the labor board, Mr. Richberg said, is because it has been a most potent force to bring about reductions in wages.

D. B. Robertson, president of the Brotherhood of Locomotive Firemen and Enginemen, said that Mr. Holden had made "a surprising statement" that the bill had resulted from the work of the labor organizations without conference or public discussion with either the managements or the public. Mr. Holden, he said, must be familiar with the efforts made by the organizations to obtain consideration and support of the measure by representatives of the public and to encourage consideration of it by the railroad managements. The bill, he said, was presented for the consideration of Secretary Hoover approximately four months ago, after the President had informed the executives of the labor organizations that Mr. Hoover would represent him in consideration of transportation questions. Conferences were then held with Mr. Hoover and the proposals discussed at considerable length, Mr. Robertson said, and only a few suggestions not antagonistic to the present provision of the bill were offered by Mr. Hoover.

"Not only did the carriers have ample knowledge of the desires of the employees and of the general character, and presumably, the specific details of the legislation they desired," he said, "but later Mr. Hoover himself endeavored to bring about conferences between the executives of the carriers and of the labor organizations, through Mr. Holden, but without success. There have been months of public discussion and conferences of one sort and another regarding not

only the matters covered by the Howell-Barkley bill but regarding the exact terms of the proposed legislation and under these circumstances for the carriers to hold aloof from any effort to-operate with the labor organizations in presenting a program and to assert that this measure was formulated without conferences or public discussion with railroad managements or the public, is to create an entirely unfair impression."

Railroad Advertising Expenditures

Mr. Robertson said that there was "one measure that the railroads had passed with their united support and under pressure of so-called public opinion which they developed" —the Transportation Act, and in this connection he submitted a special bulletin issued by the Peoples' Legislative Service on the subject of expenditures of the railroads for advertising at the time the question whether the railroads should be relinquished by the government was under consideration, but which the bulletin and Mr. Robertson referred to as having been for the purpose of bringing about the Transportation Act. Senator La Follette is chairman of the executive committee of the Peoples' Legislative Service and the membership also includes Senator Wheeler of Montana, Senator Brookhart of Iowa and Representative Huddleston of Alabama. The bulletin quoted, under the term "secret documents," a statement made by the late Thomas De Witt Cuyler, then chairman of the Association of Railway Executives, at a meeting of the standing committee of the association on October 14, 1919, relating to a fund of $1,000,000 to be expended by the association for advertising during the latter part of 1919 and the early part of 1920 "to bring to bear on Congress the strong pressure of public opinion throughout the country, to speed up railroad legislation, and put on the statute books a sound law that will protect and encourage the transportation industry."

The documents also included a report regarding the distribution of advertising in various classes of papers and gave some details regarding the assessment made against the roads for their proportion of the expense. Mr. Robertson also said that in August, 1922, when representatives of the brotherhoods were conferring with the railway executives in connection with the shopmen's strike, Mr. Cuyler had stated freely in the presence of many executives and the heads of the labor organizations that the railroads had spent some $3,000,000 trying to get the legislation they desired with respect to the return and operation of the railroads under private control. Mr. Robertson then asserted that the railroads, "having secured the establishment of the labor board and having proved to themselves that it can be made to operate to their general satisfaction, as a mouthpiece of public opinion which only barks at them and bites only the employees, now demand that the extension of this helpful body shall be perpetuated." He said that if any court had given expression to such partisanship as has been exhibited by Chairman Hooper, a litigant would be entitled to a "change of venue" but the railroads say there can be no change of venue from the Railroad Labor Board.

Chairman Hooper of Railroad Labor Board Upholds Present Law

Ben W. Hooper, chairman of the Railroad Labor Board, in addition to replying to some detailed criticisms, said in part:

The labor organizations which sponsor the bill have stated that they were engaged 18 months in the preparation of the measure, and that this is the sixth draft of it. That these men of vast experience and lifelong technical training in the science of labor controversy, with the cooperation of able legal advisers, have found it necessary to devote such infinite pains to the drafting and redrafting of this bill must impress us as uninitiated laymen with the difficulties inherent in this problem. May I also venture to suggest that it gives the public fair warning as to the amount of time and care which the 96 per cent who would be expected to live under this law should accord to the study of the proposal made to them by the less than 2 per cent. Let me hasten to say, however, that no criticism of the sponsors of this bill is implied. They have rendered a useful public service in the definite presentation of their views.

There has never been a time in our history when there were as many industrial combustibles and explosives lying around loose and exposed in the railway business as there were at the termination of federal control. The employees were dissatisfied with their wages, because an increase had been promised them and had been overdue for many months. Contrary to the prevalent public understanding, railroad employees, as a rule, had not received as high wages during the war as had labor in other industries.

On the other hand, railroad managements were quite generally disgruntled, because, as they claimed, the various classes of employees had been granted unreasonable, uneconomic and burdensome rules and working conditions during the war, because new organizations of certain classes of employees had been forced on many railroads where such organizations had not existed before, increasing the danger of strikes, and because all these things were handed over to the roads as the unwelcome heritage of the war.

The whole question of wages and working conditions affecting every employee of every class on every railroad in the United States was thrown open and dumped on the desk of the Railroad Labor Board at one time. Highly technical schedules of rules from each class of employees, built up during a long term of years, some of them forced on carriers by strike threats, some of them forced on employees by the fear of lost jobs, and some of them the mushroom growth of the war, were concurrently, collectively, and vigorously thrust into the face of the board with demands for revision, and counter demands for status quo or something better.

To add to the bedlam of this situation, general business conditions were fluctuating and uncertain. The cost of living refused to stand still or to travel consistently in any one direction, but persisted in zigzagging horizontally and vertically until the graphic charts of living costs and wages submitted to the board by the fiendish statistical experts of both sides were crookeder than a Tennessee rail fence and made a man's two eyes feel like they were tied together in a hard knot.

While all this was in progress, the sun never set on a day when somebody in this grateful republic did not cuss the board like a cabinet member. If wages were increased, other employers of labor passed resolutions to abolish the board and the farmers roared about the increased freight rates. If wages were reduced, the employees bludgeoned the board as a set of heartless hyenas devoid of the milk of human kindness, grinders of the faces of the poor, and tools of the capitalists, it apparently being the understanding of many of the employees that a board of this kind was set up to increase, not decrease, wages. When a carrier was hauled up for violating a decision of the board, tons of propaganda were sent out to convince the populace that the board was composed of a bunch of wall-eyed idiots for not being able to perceive that the carrier was a benevolent guardian of the employees when it deprived them of their legal rights.

The board's calendar was not a matter of gradual growth: it commenced business with an extremely congested docket.

From April 15, 1920, to April 1, 1924, 12,543 disputed questions were referred to the Railroad Labor Board. Of these 11,228 have been disposed of. Of the total number of disputes, 885 did not reach the status of regularly docketed cases. The cases regularly docketed, as in a court, number 11,678. Of these, 10,430 have been disposed of. In some instances, cases involving the same general question of wages or rules were consolidated under one docket and decision number. The foregoing certainly does not show that the board has been slothful in its disposal of the questions submitted to it.

It is, of course, true, as shown by Mr. Robertson, the spokesman of the labor organizations, that many cases are still pending before the board and that some of them were submitted quite a while ago. This situation is due to several causes:

1. The enormous number of cases presented to the board.
2. The fact that cases of major importance, such as wage and rules disputes, have been given precedence, and that these involved hundreds of millions of dollars and could not be hastily dispatched. A great majority of the cases remaining are grievance cases, each affecting the rights of a small number of employees, usually one. Right now, the board is enjoying the first period it has ever had when no big, general questions of rules and wages were pending before it. As an evidence that this will enable it to expedite the cases on the calendar, and remove the complaint, the fact is pointed to that during the month of March the board has closed by decisions 179 dockets.
3. The fact that some cases have been pending for a long time is further explained by the custom that the organizations have of pressing certain of their cases for preferential treatment out

of their chronological order, presumably on account of their greater importance or urgency. Having accommodated the organizations by advancing cases, the board should not be criticised for the necessary results.

4. Mr. Albert Phillips, the representative of Mr. Robertson's own organization—Brotherhood of Locomotive Firemen and Enginemen—and a man of fine capabilities, had the misfortune, due to illness of himself and family, to be absent from the board eight months out of twelve. This regrettable and unavoidable occurrence undoubtedly retarded in a large degree the work of the board and particularly the cases of the train and engine employees.

5. It must be noted that there can never again be such a flood of disputes submitted to the board.

There was no member of Congress in 1920 and no well-informed man in the country who believed the Transportation Act would result in the absolute and total prevention of strikes, but it was believed that the Act would greatly reduce the number of strikes, and this it has done in two ways:

(a) By adjusting disputes economically, conveniently, and satisfactorily to the men.

(b) By making it practically impossible for any organization ever to win a strike over the decision of a tribunal upon which all three parties are represented and before which the disputants are fully heard.

That this country would have been filled with successive strikes —some of them of great magnitude and destructiveness—had it not been for the work of the board, no well-informed man can question. Both sides were determined to fight and they did fight, but as a rule they thrashed out their respective contentions before the board like good American citizens, and stood loyally by the decisions.

The complaint is made by Mr. Robertson that the board has adopted some unsound policies. The board has doubtless made some mistakes, but I question the statement that it has adopted any unsound policies. Let us note in a condensed way the principal ones he mentions:

1. That the board has held that the ability of a carrier to pay should in certain rare instances be given consideration in a secondary way in fixing wages. This was done, I believe, in three cases. There are still a few old-fashioned people in the world who believe that the wages paid in any industry must come out of its own revenues. If this is not true, the industry will not last long unless, of course, we have government ownership and the deficit can be passed on to the taxpayers which, we are beginning to understand, means everybody.

The board was of the opinion that when the law commanded it to fix "just and reasonable" wages, it did not necessarily mean that all wages should be so standardized that the little jerk-water road struggling for life while it developed a new, raw country should pay the same wages as the big trunk lines. Of course, it will be conceded that if the standard wages on the big railroads were on the very edge of starvation, there would be no way to reduce them even a little bit for the struggling road, but that there is a good, generous margin between the standard railroad employee's wage and privation is universally known.

The board held, too, in these cases that the carrier's ability to pay could only be given secondary consideration, the first consideration being the sufficiency of the wage for the employee.

Really, this could hardly be termed a policy, but rather a few isolated exceptions to a general policy to the contrary.

2. It is complained that the board adopted an unsound policy in failing to recognize the principle of the living wage. As a matter of fact, the board has never fixed a rate of pay for any employee that was not, in the common-sense acceptation, a living wage, but it did insist that the measuring stick laid down by Congress for its use in establishing wages was the just and reasonable wage, a most flexible and comprehensive term within the bounds of which a board can find room to discharge every industrial and social duty to the employee.

3. The board's action in issuing the resolution of July 3, 1922, in connection with the shop strike is criticised, but neither Mr. Robertson nor any other man has ever placed his finger on an unsound principle in that resolution. The resolution served several good purposes. It assisted in securing new employees to help run the railroads in the interest of the public. It doubtless contributed a great deal toward preventing other employees from being drawn into the strike. This was likewise a public service. It gave warning to the carriers not to take advantage of the situation and make arbitrary changes in wages and working conditions. This was in the interest of the employees themselves, and even such of the strikers as subsequently returned got the benefit of it. It reminded the new employees of their right to protect themselves under the Transportation Act by selecting those who should represent them before the Railroad Labor Board. The resolution did not, as has so often been said, outlaw anybody.

The shop-craft organizations which struck have never been denied recognition by the board, but the board's decisions have enabled them to reinstate their organizations on several roads, a thing they could not have done without the board. Only last week, the board rendered a decision in favor of the shop crafts which denied to a carrier the right to discharge returned strikers because they had rejoined the organization. All of this not because the board is trying to assist the shop crafts against the local shop associations, but because of its policy of absolute impartiality between organizations

Violations by Carriers

The statements that have been made here in regard to the violations of the board's decisions by carriers do not reflect the facts. It is entirely out of harmony with the record to say, in substance, that the carriers have, to any general extent, obeyed only the decisions favorable to them and ignored the unfavorable ones.

The great majority of the 201 Class 1 carriers have scrupulously obeyed the board's decisions. The wages and rules fixed by the board are almost universally effective. The overdrawn statements on this subject are usually based on two fallacious propositions: First, all carriers that have been *charged* by the employees with violating a decision of the board are enumerated as violators, and, second, all carriers that adopted a course in conflict with the board's decisions are enumerated as violators although they may have subsequently conformed to the orders of the board.

The only fair criterion by which this matter can be judged is the action of the board under section 313 of the Transportation Act, which empowers the board to investigate an alleged violation and to formally declare it to be such. Up to April 1, 1924, four different Class 1 carriers and three short lines had been formally and officially declared by the board to have violated its decisions. These roads are as follows:

CLASS I CARRIERS

Erie Railroad Company	14	violations
Pennsylvania Railroad System	3	"
Chicago & Alton R. R. Company	1	"
Fort Smith & Western Ry. Company	1	"

SHORT LINE RAILROADS

Duluth, Missabe & Northern Ry. Co.	1	violation
Interstate Railroad Co.	1	"
Butler County Railroad Co.	1	"

The carriers which have violated the decisions of the board in the most persistent and hurtful way are the Pennsylvania and the Erie. The course adopted by these two carriers is not approved by other railroad managements. Mr. Robertson's mention of the New York Central Railroad as a violator of the board's decisions is erroneous.

In connection with this subject, Mr. Robertson does the board a very inexcusable injustice when he seeks to leave the impression that the board's limited powers have been more vigorously used against recalcitrant employees than the violating railroads. The board, on the contrary, has utilized every atom of legal power and moral suasion at its command to make its decisions effective on all railroads and is well aware that its efforts, under the law, to direct public sentiment against violating carriers has occasionally seemed too harsh to them. The decisions of the board will show that its arraignment of such carriers has been more severe than anything it has so far found it necessary to issue against employees.

The statement made to the committee that there is widespread dissatisfaction among the employees with the Railroad Labor Board is correct in one sense and incorrect in another.

That the work of the board has been beneficial to the employees is recognized by a large percentage of them, but it would require courage for them to make public admission of the fact, because their chiefs are seeking the abolition of the board. There would be few, if any, men who represent the organizations in presenting cases to the board who would subscribe to the statement that the attitude of the public group is not fair and judicial.

The whole truth of the matter is that most of the leaders of the organizations are so strongly opposed to the theory upon which the labor section of the Transportation Act, 1920, is predicated that they have never been able to assume a fair attitude toward the board. They opposed the enactment of this provision and have fought it unceasingly ever since. If they had been contented to go along with the law and the board, and occasionally to say a good word for the board to their membership when it had rendered decisions of great importance and benefit to the men, the sentiment among employees would have been vastly different. But from the hour the law went into effect no opportunity has ever been lost by these leaders to belabor the board and the law to their membership. The resolutions of the train and enginemen, heretofore read into the record, asking Congress to repeal the present law, contained the significant statement "that the fault lies with the plan or system probably more so than with the personnel of the board."

In order to destroy the law it was deemed necessary to fight the board. No man can serve on any kind of board that deals with labor disputes and expect to escape the most violent criticism if he assumes an independent and unbiased attitude, lives up to his

oath of office, and shows symptoms of the possession of guts.

The Railroad Labor Board has rendered decision after decision sustaining the right of collective bargaining, protecting labor organizations against powerful assaults aimed at their destruction, upholding their rights of conference and negotiation, and, in fact, maintaining the principles most vital and sacred to labor, but only the scantiest of reference, if any at all, is ever made to such things as these.

The main, outstanding, overshadowing purpose of the Howell bill is to make it easier for railway employees to enforce their demands by strikes and, to this end, to exclude the public from all influential participation in or supervision over the adjustment of labor controversies. The enactment of this measure would constitute the longest step backward that has ever been taken in federal legislation. In my humble opinion, it would prove a curse to the public, the railroads, and the employees.

Public Entitled to a Voice

The present Transportation Act asserts the right of the producers, shippers, and consumers to a voice in the adjustment of railway labor controversies with a two-fold end in view: First, that strikes may be prevented, and, second, that railway managements may not be dragooned by violence or the threat of it into yielding to unconscionable demands the financial burden of which will be transferred to the shoulders and backs of all other people, including labor itself in other industries. The people of the United States do not want the railway industry to get into the condition in which the coal industry is popularly believed to be, where force and collusion have combined to destroy public confidence in all wage agreements and, consequently, in the fairness of the prices the people pay for coal.

A Close-up of the Bill

But let me give what I consider a close-up view of the Howell bill.

1. It wipes out a board composed of equal representation of the carriers, the employees, and the public, and having jurisdiction of all labor controversies, and substitutes therefor four adjustment boards having jurisdiction of grievances only.

2. It establishes no board or tribunal with jurisdiction of the big fundamental questions of wages and working conditions—the questions which usually provoke strikes.

3. It is true that it provides for arbitration boards to pass upon questions of wages and working conditions, but the submission of a dispute to an arbitration board is purely voluntary on both sides, and the bill leaves the implication that no odium would attach to either party for refusing to arbitrate.

4. It sets up a Board of Mediation and Conciliation, composed of five members, without any power to pass upon disputes, but with the power to mediate and conciliate.

This Board of Mediation is also empowered to appoint the "balance-of-power" member or members on arbitration boards.

5. The most remarkable evidence of the purpose to completely exclude the public from participation in the adjustment of controversies is shown in the provision covering the eligibility and appointment of the members of the Board of Mediation and Conciliation. Instead of including an express provision making the partisans of the carriers and the employees both ineligible to membership on this board, there is an express provision making them eligible. In fact, the eligibility of members of the Board of Mediation and Conciliation is identical with the eligibility of the representatives of the carrier and the employees on the present Railroad Labor Board. This provision in a bill which has been carefully redrafted six times by experts means that the employees have deliberately planned to seek membership on such Board of Mediation and Conciliation, if it should ever be created, and it is my information that certain employees are already aspirants for such appointments.

Of course, if the President appointed one of them on the board, he would have to strike a balance by appointing a representative of the carrier and the result would be either a tripartisan board or another bipartisan board similar to the adjustment boards. In either event, the usefulness of the board would be absolutely destroyed both for mediation and for the appointment of arbitration.

6. The operations of these adjustment boards and the Board of Mediation and Conciliation are conducted without publicity and, when their efforts fail and a strike is threatened or results, the public has no authoritative way in which to acquaint itself with the facts upon which a potent public opinion can be predicated.

7. The Howell bill attempts the undemocratic and un-American thing of confining representation on the adjustment boards to certain labor organizations and excludes many other rival organizations. The constitutionality of such a discrimination might well be doubted. Certainly it is not in keeping with our ideas of freedom.

The favored organizations are as definitely designated by description as they could be by name. A previous draft of the bill set them out by name, but legal advice doubtless softened and camouflaged this crude injustice.

The history of this country shows that labor organizations are not permanent, but are subject to change. The Railroad Labor Board has established the American plan of permitting the employees to settle by secret ballot their choice of representation.

It must be remembered, too, that the carriers have not yet been consolidated and that under the law each of them makes agreements with its own employees.

8. Under the bill there would be a new arbitration board for each new dispute. The nonpartisan member of these boards would be likely to be without experience and would function under great disadvantages. It would be difficult to secure the services of satisfactory men who could devote the time necessary to the study and disposition of such technical and unfamiliar matters. This has always been one of the unsatisfactory features of such arbitrations.

The present law provides a more workable scheme by setting up a permanent board upon which there will always be experienced public members, as well as technically trained men from both sides of the dispute.

There need be no fear that the parties will cease to refer their disputes to a permanent board. Naturally, precedents will be established on many matters of detail that will discourage the submission over and again of the same dispute. It is advantageous to all parties that such a stabilizing process should take place.

As to the revision of rules, this is a matter of growth and development just like the laws of a state, and a permanent board would always be responsive to this idea.

Disputes as to changes in rates of pay are always new cases, and the requests are based on new conditions. Disputes are still coming to the Railroad Labor Board at the rate of about 50 per month.

9. The whole machinery of the bill is cumbersome, complicated, and expensive. Instead of a board with nine members, drawing aggregate salaries of $90,000 per year, it sets up five boards of 45 members, drawing aggregate salaries of $340,000 per year, with provisions for all the independent overhead expenses for each board that are now authorized for the Railroad Labor Board.

On top of this would come the great expenses of arbitration boards, the salary of an arbitrator not being set, but, in a former draft of the bill, fixed at the rate of $25,000 per year.

10. Many other details might be mentioned, but let us close them by calling attention to the truly remarkable composite effect of the measure.

To Perpetuate Existing Pay Scales

It legalizes the perpetuation of every rate of pay and every working rule now in existence. Not one of them could ever be changed by or for a carrier, regardless of what unexpected changes might take place in conditions, unless such revision were made by an arbitration board, and no such arbitration could be had without the consent of the employees.

Under the present law, the Railroad Labor Board has ruled, in effect, that a carrier must not arbitrarily revise rules or reduce rates of pay, but the board is always open to hear a petition either for an increase or a decrease and the opposing party does not have to consent to the hearing.

It would not be difficult for me to point out certain defects in the present law that could be remedied by amendment, the effect of which would be to further guarantee the rights of the employees and make the law bear somewhat more equally upon the two parties.

It would never occur to me, however, to demolish the present law and substitute for it a measure so partisan in its nature, so destitute of all protection of the public, and so certain to transform the present peaceful conditions into disorganization and discord as would the pending measure.

Adjustment Boards

The employees are correct in their contention that the failure of the carriers and the employees to agree upon the establishment of adjustment boards has substantially detracted from the effectiveness of the law. The Labor Board is in sympathy with this view, because it has keenly felt the need of the help that it would have derived from such adjustment boards. The main point of disagreement between the carriers and the employees in connection with this matter is as to the territorial scope of the proposed boards. The law provides that adjustment boards may include one carrier and one organization or any number of carriers and organizations. The Labor Board held, soon after its organization, that it had no jurisdiction over a dispute as to whether a proposed adjustment board should be established.

My suggestion would be that the Labor Board be given express jurisdiction of a dispute of this nature, so that it might fully consider and pass upon the respective contentions of the parties

as to the establishment of any such adjustment board, but that the law as to such boards otherwise remain as it is. The wisdom, justice and practicability of the establishment of any proposed adjustment board or boards could be decided upon after a thorough investigation of the matter.

Preliminary Steps Compulsory

While the Transportation Act does not make a decision of the Labor Board legally enforcible, the steps leading up to such decision are mandatory. The statute says that, in connection with any dispute, the parties *shall* confer and negotiate and *shall*, if they fail to agree, submit the controversy to the board. These mandatory provisions have been disregarded and evaded by a number of railroads with consequent disadvantage and injustice to the employees. In one instance only, the employees on one road ignored these imperative requirements of the law and went on strike without first coming to the Labor Board with their grievance. This, by the way, is the only really illegal strike that has occurred since the Transportation Act went into effect.

The law should be so amended as to prevent the violation or evasion of the provisions which command conferences and negotiations to adjust a dispute, and the submission of it to the Labor Board. Neither the carrier nor the organization of employees should be permitted to take arbitrary action until these requirements have been complied with, for in them lies the principal efficacy of the law. They afford four strong preventives of strikes: (1) Conference between the parties, (2) an opportunity to make full, public presentation of controversies, (3) the decision of a tri-party board that may prove acceptable, and (4) "cooling time," something that has saved all of us from many mistakes in life.

No wiser and more just provisions were ever written into law. They were meant to be mandatory and they should be backed up by appropriate penalties. This is of vital importance to the employees particularly, and it is even more important to the public.

In connection with the foregoing recommendation, there necessarily arises the question of representation of employees in conferences, negotiations and agreements.

The law having commanded the carrier to confer with the representatives of the employees, the carrier should not be permitted to evade the law by conferring with somebody else under the pretense that it is conferring with the employees' representatives. If this is done, and it has been done, the very vitals of the law are cut out and cast away. The lawful conference has not been held until it is held with the chosen representatives of the employees. A carrier should not be permitted to set up or collude in the setting up of a bogus minority organization which does not represent the majority of its employees. Such a performance is a violation of the letter and spirit of the Transportation Act; it is contrary to the genius of our free institutions; it is inimical to peace in the railway industry and it is, therefore, in contravention of sound public policy.

This right of the employees should be protected by explicit provisions with the sanction of appropriate penalties.

These simple amendments to the present law would make it vastly more satisfactory to the employees and more serviceable to the public, without any encroachment upon the rights of the carriers. Such amendments would not involve the overturning of the present system of adjusting controversies and the hasty adoption of an obviously weak substitute.

When Mr. Hooper spoke of having been invited to appear before the committee to discuss the pending bill Senator Couzens remarked that he did not think the committee had invited Mr. Hooper but that he thought Mr. Hooper had invited himself.

"Yes," replied Mr. Hooper, "but I think it would be referred to as requesting the pleasure of being invited by the committee. I believe the board did receive a letter from the secretary of the committee notifying it of its right to appear."

Mr. Thom Explains Advertising Expenditure

Alfred P. Thom, general counsel of the Association of Railway Executives, said that the statements by Mr. Richberg and Mr. Robertson contained "such unjust aspersions of the motives of honorable men and such misrepresentations of the facts and the law" that he would like to have the opportunity to present a statement in reply. Referring to the statements that assessments for publicity expense were charged to operating expenses and thus paid by the shippers and passengers Mr. Thom said that while he would regard it entirely proper to make such charges the statements themselves refute that idea, showing that the expense was charged to corporate expenses because the railroads at the time were under federal control and their only income was the standard return. Three-fourths of the assessment was to be paid, he said, by February 1, 1920, whereas the roads were not returned until March 1.

He asked the committee to bear in mind the conditions confronting the railroads at the time. "An effort was being made by the director general," he said, "to extend federal control for a period of five years. The Esch-Cummins bill was not in existence when this was done. It did not come into existence until about February, 1920. The amount was spent and the next year's assessment for such purposes was $150,000 and for the following year it was $200,000. There has not been any participation on the part of the Association of Railway Executives in publicity matters since 1922. Whatever is done in that direction is done either by individual railroads or by groups of railroads. But at this time, when the whole question of the future of the railroads and of their ability to furnish service to the public was in the balance; when a propaganda of misrepresentation was being made against them in all communities, they did attempt to address 110,000,000 of the American people by putting the facts as to their industry before them publicly, openly and avowedly."

When Senator Couzens asked why the reports regarding the expenditure were marked "confidential," Mr. Thom replied that "the result was open on the pages of the newspapers. Of course the financial methods by which any business carries itself on are confidential." He added that "it did not cost one-tenth as much as the effort made in 1922 by the shopmen to prevent the railroads from giving to the American people adequate service."

This led to a discussion with Senator Gooding on the subject of accounting for advertising expenditures. The Senator said that the matter was taken up with the Interstate Commerce Commission and it had advised that advertising is charged to operating expenses.

"I think that is where it ought to be charged," said Mr. Thom. "It has come to be one of the expenses that we must incur in order to get the facts of this industry fairly before the American people. We assert the right to do it and defend it as a proper expenditure in the interest of the railroads and the public, that the public may be advised of the facts and make up their minds after having the statements of both sides before it."

Senator Gooding said that the purpose of his resolution for an investigation of railroad propaganda, is that the Interstate Commerce Commission may be in a position to know how much is spent, how it is spent and what it is spent for.

"There is nothing the railroads will welcome more sincerely than a fair consideration of that subject," said Mr. Thom.

"Then I hope they won't oppose the adoption of my resolution" said Senator Gooding.

"They certainly will not," Mr. Thom replied.

Independent Organizations of Employees Oppose Bill

On April 7 the sub-committee devoted the morning session of about an hour and a half to hearing representatives of the independent organizations of employees not affiliated with the national organizations, who vigorously opposed the Howell bill on the ground that it gives no representation on the proposed boards to the large portion of employees not members of the national organizations and that the operation of the present law is likely to be more satisfactory in future now that the most of the large number of disputes that swamped the labor board during the first years of its existence have been settled. Representatives of the associations of shop employees on the Union Pacific and the Pennsylvania

described the workings of their organizations, saying that most satisfactory relations had been established with the managements and that they were able to settle their disputes at home without friction. After a description of the methods by which the election of employee representatives is held on the Pennsylvania, the senators were told that another election would take place this month and they were invited to inspect the methods by which it is conducted in order to convince themselves that it is conducted along fair and democratic lines.

When time came for the close of the morning session, it appeared that a large number of additional representatives of various organizations were present and had statements to make. Senator Couzens, chairman of the sub-committee, said that it had no time to hear testimony on "the same thing over and over again" and that the hearings must be brought to a close. He then had those who desired to testify stand up and when he saw how many there were, announced that it would be impossible for the committee to hear them, but that they might file their statements. Most of them stated that they were unqualifiedly opposed to the bill. A representative of the Railroad Yardmasters of America said that his only objection was that the yardmasters are not given representation on the proposed boards, although his organization holds contracts with most of the eastern carriers and some western roads.

Robertson Predicts Passage of the Bill

The daily newspapers have been paying very little attention to the progress of the hearings but in a press release sent to them for publication on April 7 they were asked to give "all reasonable publicity to a statement from Mr. Robertson predicting the passage of the bill and purporting to interpret some of the testimony as follows:

"Unexpected public and even railroad support for the major proposals of the Howell-Barkley bill to abolish the Railroad Labor Board has developed in the hearings before the Senate Committee on Interstate Commerce.

"The National Industrial Traffic League (the largest organization of shippers in the country) urged the senators to abolish the Labor Board and to restore government mediation to settle railroad labor disputes, which is what the Howell-Barkley bill would accomplish.

"Chairman Hooper of the present Labor Board urged the committee to retain the Labor Board but to require the creation of adjustment boards to settle minor grievances. These are required in the proposed act. He also approved the proposition that railroad managements should be compelled to confer with the real representatives of the employees in order to prevent the making of fraudulent contracts with pretended representatives chosen in fact by the railroads.

"The railroad executives admitted that the underlying duty imposed in the proposed law was a proper and necessary one, that is, to confer and make agreements with employees through collective bargaining. They advocated that the membership of the present Labor Board—three railroad, three employee, and three public members—should be changed to two railroad, two employee, and five public members. The decisions of the Labor Board would then be made by the five public members. These decisions are only advisory and not enforceable by law. The Labor Board thus changed would be practically a board of five public mediators. That is exactly what is provided for in the Howell-Barkley bill as the government Board of Mediation and Conciliation.

Every important feature of the proposed Railway Labor Act has thus received strong support from influential critics of the bill and the number of friends of the proposed legislation at the Capitol has steadily increased since the hearings began March 18. The committee has announced the close of hearings early next week. From a poll of the Senate now in process of completion, I predict that when the bill reaches the floor there will be a substantial and vigorous majority in favor of its passage."

The House committee on interstate and foreign commerce has not as yet announced hearings on the similar bill introduced by Representative Barkley. "Labor," the paper published by the labor unions, says the committee has refused to consider the bill and that the "progressives" intend to prepare a petition that the committee be discharged from consideration of the bill.

Brotherhood Representatives Reply to Indianapolis Protest

WASHINGTON, D. C.

THE national legislative representatives of the four train service brotherhoods have addressed a letter to Chairman Hall of the Interstate Commerce Commission asking that the commission make "suitable reply" to the protest filed with the commission by the Indianapolis Chamber of Commerce protesting against the action of the Bureau of Locomotive Inspection in ordering a large number of locomotives out of service on the Pennsylvania. The letter says that the text of the protest was seen in the *Railway Age*, which published an extract of it in the issue of March 22, 1924, page 799, and the commission is asked to request the *Railway Age* to give its reply equal prominence with the article referred to. The *Railway Age* has not yet received any communication from the commission on the subject, but the letter of the legislative representatives to Chairman Hall, as published in "Labor," is in part as follows:

We bitterly resent this plea by the Indianapolis chamber of commerce for a relaxation of the locomotive inspection service because the action demanded would endanger the lives of not only the men engaged in train service but also the lives of the traveling public.

The action of the Indianapolis chamber of commerce is shown by the report of its own committee to be dictated by the most sordid motives. The report alleges that because of defective locomotives in the service of the Pennsylvania Railroad sent to the shop for repairs, certain coal mines were shut down and failed to produce 153,544 tons of coal valued at $360,000. That this allegation is specious will be apparent to everyone who knows that even under the best conditions these mines are operated with extreme irregularity and are normally shut down more than 100 working days a year.

But, even granting that the statement was true, who outside of the Indianapolis chamber of commerce would weigh these tons of coal in the balances against the imminent danger from those defective locomotives to the lives of the members of the train crew and the passengers of the Pennsylvania Railroad?

In order to further show the narrow and selfish position taken by the Indianapolis chamber of commerce we quote the following:

"The committee holds no brief for the Pennsylvania, the relations between the railroad and the federal authorities in reference to locomotive inspection being a matter in which the public has no concern unless and until locomotive inspection results in undue interference with the service of the carriers and accordingly causes loss and inconvenience to the shipper."

When the above quotation is read by a member of the traveling public or one who is engaged in train service as an employee, he is forcibly impressed with the idea that the Indianapolis chamber of commerce has no concern "unless and until the locomotive inspection law results in undue interference."

We feel that the one paragraph that we quote amply illustrates the position taken by them in placing interference with their business because the Pennsylvania Railroad persists in operating defective locomotives, as of more importance to them than the lives and limbs of the members of the traveling public and railroad employees.

This one sentence alone, we feel, is enough to indicate that they have set forth in their article, what upon due consideration, they themselves should be heartily ashamed of. We feel justified in saying that we are ashamed of them for giving public utterance to such a statement.

No one who has studied the rapid increase in the number of employees and passengers killed and injured as a result of defective equipment can fail to be impressed with the necessity for more

comprehensive and drastic inspection. The last report of the chief inspector of the bureau of locomotive inspection, covering the year ending June 30, 1923, shows an alarming increase in accidents arising from this cause. The number of accidents due to the failure of some part of the locomotive increased from 622 in 1922 to 1,348 in 1923—an increase of 117 per cent. The number killed and injured in such accidents more than doubled. In spite of our continued protests and demands for better equipment and more rigid inspection, our members have been slaughtered at a rate unparalleled in the history of American transportation.

We heartily commend the action of the bureau in striving to clear up the situation on the Pennsylvania Railroad, which has been one of the most persistent offenders in the operation of dangerously defective locomotives. Last year this road had 181 accidents arising from this cause, in which eight were killed and 197 injured.

We most respectfully suggest that a suitable reply be made to the Indianapolis chamber of commerce and that the *Railway Age* be requested to give it equal prominence with the article referred to.

We also ask that the commission give consideration to a rebuke to the impertinent protest from the Indianapolis chamber of commerce.

H. E. WILLS,
Assistant Grand Chief, National Legislative Representative, B. of L. E.

W. M. CLARK,
Vice-president, National Legislative Representative, O. R. C.

ARTHUR J. LOVELL,
Vice-president, National Legislative Representative, B. of L. F. & E.

W. N. DOAK,
Vice-president, National Legislative Representative, B. of R. T.

Washburn Side Frame for Arch Bar Trucks

THE BALTIMORE & OHIO is using something over 40,000 arch bar truck frames of a unique design. The first of these frames were applied to the new equipment ordered in 1922, and they are now in service on box and gondola cars of 80,000 lb., 110,000 lb. and 140,000 lb. capacity. The side frames of the trucks referred to were designed by Edwin C. Washburn, assistant to the president of the Baltimore & Ohio.

The object aimed at in this design is to use as large a quantity of rolled material as possible and to take advantage of the merits of the arch bar type while eliminating its undesirable features. Rolled bars are low in cost and are of definitely known strength. But inasmuch as nearly a third of the arch bar material in the old M.C.B. design was removed to allow the introduction of the column bolts and, furthermore, as these holes were drilled near the bends of the bars, the frame was not as strong as the weight of material would warrant. In the Washburn design these points of weakness have been corrected.

A drawing and a photograph of 55-ton B. & O. truck

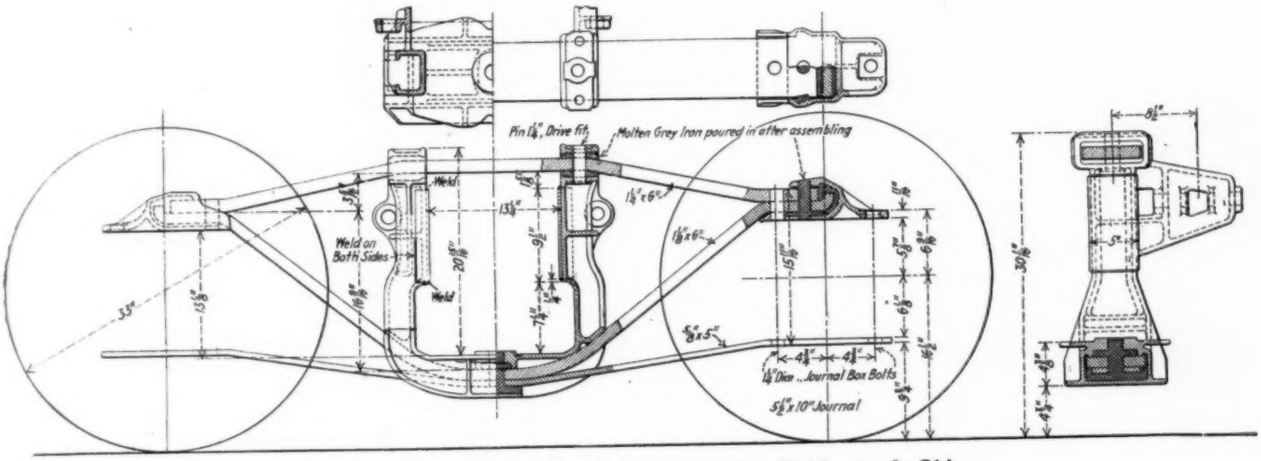


Fig. 1—55-Ton Washburn Truck Used on the Baltimore & Ohio

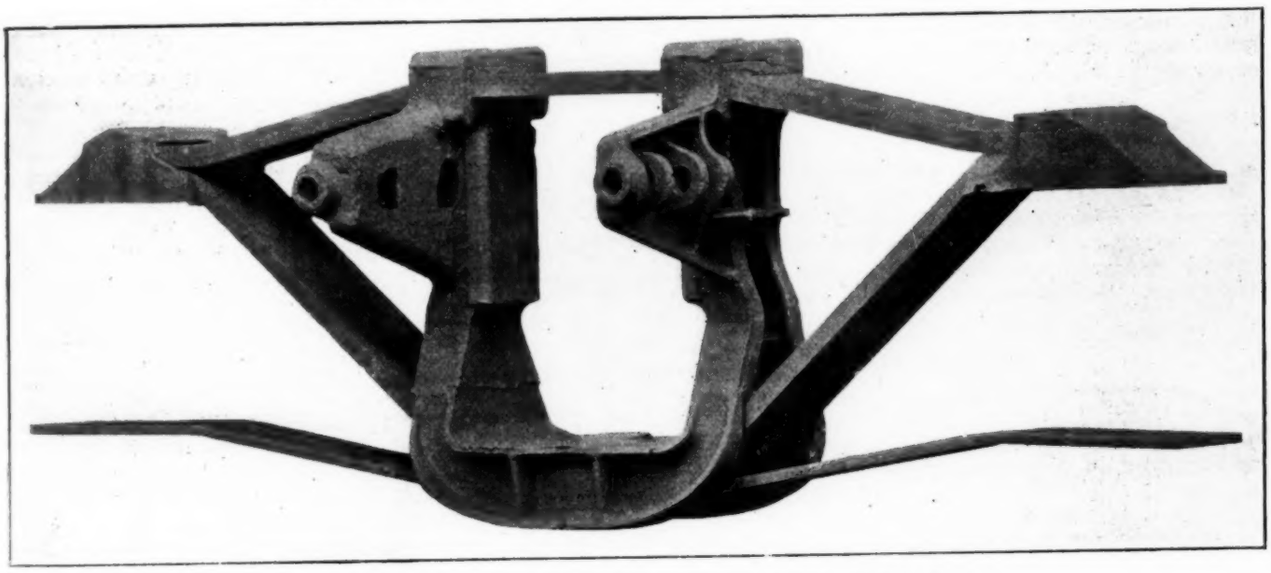


Fig. 2—Washburn Side Frame for Baltimore & Ohio 55-Ton Cars

frame, as manufactured by the Standard Steel Car Company, Butler, Pa., are shown in Fig. 1 and Fig. 2. The other two sizes are similar in construction, although differing in dimensions. In the 70-ton truck frame two 1⅛-in. pins are used on either side to connect the upper arch bar to the center casting.

A modified design is shown in Fig. 3. In this form the head castings are omitted and the ends of the arch bars are of the regular M.C.B. design and take the regular journal box and bolts. A third design is shown in Fig. 4. In this case the journal box and head casting are integral, the box being attached by a pin and cast steel filler at the top, the same as in Fig. 1. In both of these designs the center casting is riveted to the lower arch tie bars by means of 1-in. rivets, but as these rivet holes are some distance from the easy bend, the bars are not unduly weakened.

The Washburn side frames have the usual top and lower arch bars and a tie bar. The lower, or tension member has its end turned up and the upper bar is carried to this projection. To assemble the frame the bars are first passed through the center column casting, and the two recessed head castings, shown in Fig. 1, which fit over the journal boxes, or the special journal boxes shown in Fig. 4 are slipped over the ends of the arch bars. Rolled steel pins are driven through the arch bars and the heads of the columns and usually also through the bars and head castings. The as-

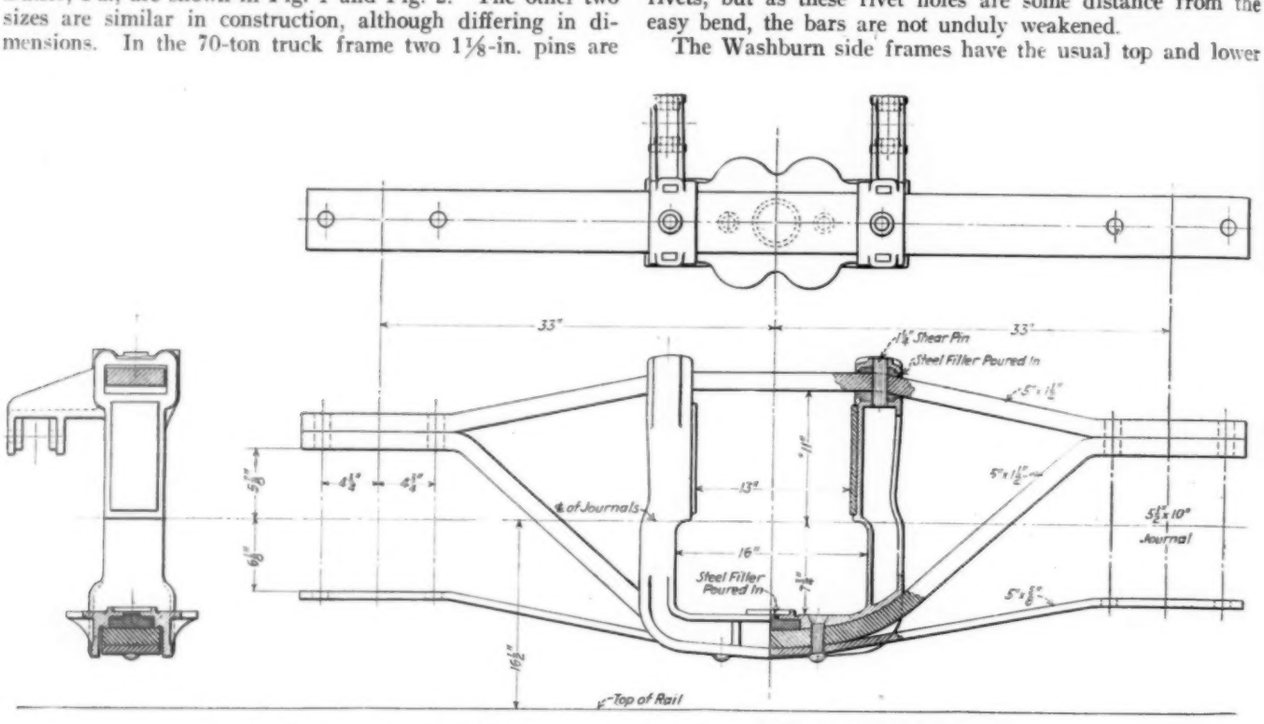


Fig. 3—Washburn Truck Side Frame with M. C. B. Arch Bar Ends for 55-Ton Cars

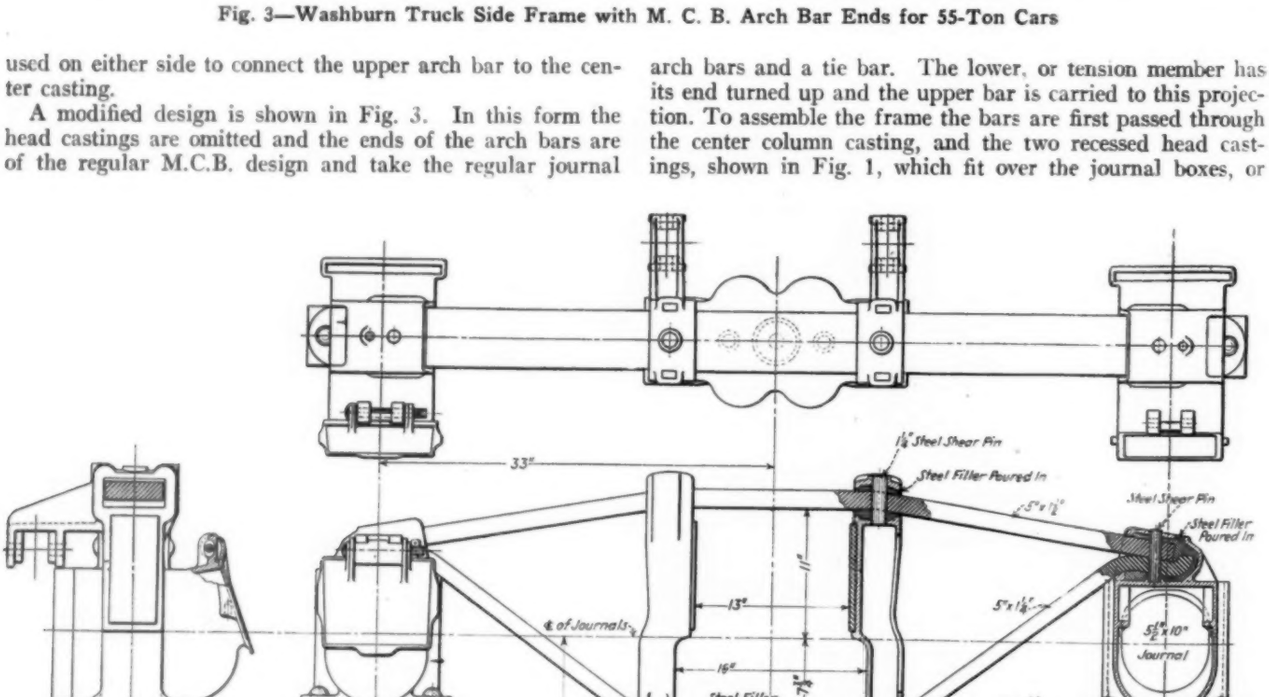


Fig. 4—Washburn Truck Side Frame of Journal Box Type for 55-Ton Cars

sembling of the frames is done on jigs, thereby assuring accurate measurements and uniform wheel centers. Chills, or other material are used to stop up the openings, and cast steel or other suitable material is then poured into the upper openings in the center column casting and in the recessed end castings. In most of the trucks cast metal has also been used to unite the center column and the lower bars. This gives a solid integral construction. It is not necessary that the filler material be fused to the bars as it forms simply a compression filler block which is cast in to hold the parts in position. Referring to the illustrations, it will be observed that the lower arch bar and also the tie bar are free from sharp bends. Where they pass under and leave the center column casting, the curves are of particularly large radius and the bars are not weakened by rivet holes. The construction is thus more reliable than the old M.C.B. design.

In the event of breakage of a head casting or an integral journal box, the defective part may be burned off and a new piece substituted, a new pin being driven in and the retaining metal poured into the cavities.

These truck frames have shown very satisfactory results on the road as well as under drop and static tests, and when tested to destruction do not break, but bend. Should they become distorted by a wreck or derailment, they would still have sufficient strength to carry a load to the terminal.

A few of the earlier frames made did not have the bars pinned to the column heads and as a result continued usage or wrecks had a tendency to spread the columns. As now made, the bars are pinned to the columns before the interlocking filler metal is poured in.

The sale of these frames is now being handled by the Duquesne Railway Supply Company, Pittsburgh, Pa.

Hearings on Bills to Change Rule of Rate-Making

Mr. Willard Urges Congress Not to Remove Its Statutory Approval of Principle of Fair Return

WASHINGTON, D. C.

HEARINGS on various bills which have been introduced in the Senate to repeal section 15a of the interstate commerce act were begun before the Senate committee on interstate commerce on April 9, with Daniel Willard, president of the Baltimore & Ohio, as the first witness. Mr. Willard urged that the act in its present form and without amendment be given a further and more complete trial, on the ground that such a course is not only in the best interests of the carriers, but even more so in the best interests of the country as well.

The notices of the hearing sent out by the secretary of the committee stated that the hearings would be on Senate bills 91, 1899, 1919, 1227 and 2951, and that "all of the above bills pertain to the repeal of section 15a of the transportation act," but the hearing had hardly started when the question was raised as to whether other points included in some of the bills, such as the question of the powers of state commissions, were also to be considered and Chairman Smith announced that the question would be put before the committee at a meeting on the following day. Another discussion was also precipitated at the outset when Alfred P. Thom, general counsel for the Association of Railway Executives, said that as it was rather unusual procedure for the opponents of a bill to be asked to testify before the proponents are heard, and that while the railroads were prepared to go ahead, they would, of course, desire an opportunity to be heard in rebuttal. Several members of the committee expressed surprise that this arrangement had been made, and said they had not been informed of it.

A number of the Republican members of the committee who have not been regular attendants at its recent hearings commented on this strange procedure, but Chairman Smith said it had been decided upon at the last meeting. Senator Fernald said it would take about twice as much time to hear the railroads first and then again after the advocates of the bills have been heard. Senator Bruce also said he had not heard of any such decision, and asked to be shown the minutes of the meeting. Mr. Thom said he had no thought of asking a reconsideration, and Mr. Willard had begun reading his prepared statement when Senator Bruce announced that he had found no record of such a decision. Chairman Smith said that just at the close of the meeting the question of procedure had been raised, and he had understood that those present had given their assent to the plan of hearing the railroads first "because they are organized and their representatives are here ready to proceed," and that he had assumed that a note had been made in the minutes. Senator Cummins said he had never heard of it but that he thought it made no difference in what order the facts were presented. Chairman Smith insisted that the committee at once take a vote, and it was decided apparently unanimously to proceed.

Mr. Willard had read only part of his statement, and the hearing had proceeded less than an hour when the chairman announced that because of important business on the floor of the Senate it would be necessary to adjourn until next morning. John E. Benton, general solicitor for the National Association of Railway and Utilities Commissioners, then pointed out that some of the bills involve the question of intrastate rates, which had been covered very fully in testimony of state commissioners at the last session of Congress, and he asked that the committee consider whether this testimony might be considered in connection with the present bills, as otherwise many of the state commissioners would desire to be heard again.

Mr. Thom said he had understood that this hearing was only on section 15a, which presents a tremendous question in itself, and he asked the committee to consider whether it will not allow a full hearing, conducted in an orderly way, on this question, which the railroads are prepared to discuss. S. H. Cowan, representing livestock shippers, pointed out that the Capper bill involves the intrastate rate question as well as the general rate-making rule, and said he supposed that of course the hearing would be co-extensive with the points raised in the bills. Chairman Smith announced that the matter would be laid before the committee in executive session.

Daniel Willard Urges Fair Trial of Present Law

Mr. Willard's statement was in part as follows:

I think I am justified in saying that no large public question requiring legislative action ever received a more thorough or exhaustive investigation and study than was given to the railroad question by the 66th Congress preliminary to the passage of the Transportation Act of 1920. The debates in Congress clearly show that two or three outstanding principles relating to the problem were definitely recognized and accepted. First in importance perhaps was the recognition of the fact that it was of the highest importance to the welfare of the people of this country that they should be provided at all times with an adequate system of trans-

portation by rail, and second, that that end could be accomplished only by one of two possible methods. The government could buy and continue to operate the railroads as it was then doing, or operation of the railroads by the government could be terminated, the properties restored to their owners to be held and operated in the future as in the past as private enterprises, subject at all times, of course, to suitable regulation by the government. The question was decided, wisely I think, in favor of the resumption and continuation of the system of private ownership and operation under governmental regulation.

It was recognized that in the interests of the public, to say nothing of the interests of the carriers, it was vitally necessary that the railroad companies should expend each year for additions and betterments fully $750,000,000 in order to keep the transportation facilities abreast of the growing requirements of commerce, which amount must in large measure come from voluntary investors.

Section 15a, which provides a rule for rate-making for the guidance of the Interstate Commerce Commission, was in no sense new or of a revolutionary character. As a matter of fact, the rule for rate-making which the statute now provides and which has therefore received legislative sanction, is neither more nor less in principle than the rule of procedure which the Interstate Commerce Commission itself had already found necessary and adopted under conditions of actual experience.

So far as I have been able to learn, the demand, which is in no sense general, for the repeal of this section of the act, is urged by some on the mistaken ground that the law in its present form actually guarantees a definite return to the owners of the railroad properties, while no such guarantee is given to the owners of other property; and by another class—I think also of limited number—who seem to believe that if section 15a of the act were repealed it would then be possible to procure from the railroads in some manner not made clear, lower rates than are in effect today, regardless of the actual cost of performing such transportation. I believe and shall undertake to show that both of these assumptions are mistaken.

Had the act contained a guarantee, as has been claimed, the railroads failing to earn the rate of return designated by Congress would in that event have had a good claim against the government for a like amount, but of course they had no such claim and no single demand has been made by any railroad upon the government based upon the theory that such a claim did in fact exist. Certainly a misunderstanding of the clear intent of a portion of an act cannot be considered a sufficient reason for changing or repealing that portion of the act so misunderstood.

There are no doubt some people, perhaps many in the aggregate, and I do not seek to minimize their number or importance, who have actually been led to believe that the rates which they are required to pay the railroads for transportation today are higher than they would be if it were not for section 15a of the Transportation Act. The people who so hold, seemingly fail to recognize that the reason why railroad rates are higher today than they were in 1914, or before the war, is the same reason which accounts for higher prices in every other direction with comparatively few exceptions. In short, prices of materials, wages and costs of all kind, including taxes, not only in this country but in the entire world, are higher today than they were in 1924—not, however, because of section 15a; not because of any legislation in this or any other country, but because for more than four years the principal nations of the world were engaged in a most desperate effort to destroy as much property and as many lives as possible. The cost resulting from such a course must some time be paid, is in fact now being paid, and is reflected in the higher prices which we pay for nearly everything at the present time.

It was repeatedly stated during the debates which took place in both Houses of Congress concerning the Transportation Act of 1920, that railroad rates in this country previous to the war were lower than in any country in the world. Relatively, and considered as a whole, they are even lower today than they were in 1914. My basis for the statement just made is as follows: The latest official reports show that the average rate per ton mile on the American railroads today is 54.63 per cent higher than it was in 1914, as compared with an increase of about 100 per cent in basis of costs. The most reliable reports obtainable also show that the average annual wages of the railroad employes today are approximately 98 per cent higher than they were in 1914 or before the war, and that the rate paid per hour has increased 126.81 per cent as compared with the year 1916. The price which the railroads, or at least some of them, were obliged to pay for their fuel coal in 1923, was 116 per cent higher than in 1916. The prices paid for lumber, ties, steel, including rails and other representative material, were about 57 per cent higher in 1923 than the average prices during the three years, July 1, 1914, to June 30, 1917, known as the test period. Taxes paid by the railroads in 1923 were 145 per cent higher than in 1914, equal to an increase of $196,485,000. The official figures of the United States Department of Labor show that the total cost of living in 1923 was 68 per cent higher than in 1914, as indicated on the chart submitted herewith. These figures, which have been carefully obtained from the most reliable sources, fully support the statement that railroad rates today are comparatively lower than in 1914, because the per cent of increase in railroad charges over 1914 is substantially less than the average aggregate per cent of increase in connection with the other items above mentioned.

I agree absolutely with the statement made by Senator Cummins in a public address last summer, that if section 15a had not been enacted at all, railroad rates since the termination of federal control might very well have been higher than has actually been the case. The commission's 37th annual report shows for the 10 years 1908 to 1917, inclusive, an average annual return on investment of 4.94 per cent while from September 1, 1920, to December 31, 1923, a period of 40 months, the rate of return on property investment was only 3.73 per cent. In other words, the average rate of return since the termination of the so-called Guaranty period has been only 3.73 per cent as compared with the 4.94 per cent calculated in the same manner and upon the investment account developed in the same way for the 10-year period prior to federal control.

I think we are justified in saying that if the Transportation Act of 1920 had not been passed at all, and if the Interstate Commerce Commission had continued to deal with the rate basis on the same general lines which it followed previous to federal control, that we might also expect under such circumstances that they would have approved of rates sufficient to yield a rate of return upon the property investment at least equal to the average return earned during the earlier period, because it was then claimed by the carriers, and is now generally admitted by the public and shippers as a whole, that the basis of railroad earnings for several years preceding federal control, was lower than it ought to have been in the public interest.

I realize that it may well be asked—If section 15a contains no guarantee for the carriers, and if it has not had the effect of bringing about higher railway rates, if, as a matter of fact, the rates which have been effective under the act have actually been less than they might have been had there been no such act, why, under such circumstances, do the railroads urge that section 15a be retained? Why should they oppose the repeal of a section of the act which apparently is of no value to them in that particular? Such a question would certainly be a proper one, and those who might feel disposed to ask it are entitled to a full and frank reply, and I believe that a satisfactory reply can be given.

The chief value, as I view it, of section 15a of the Transportation Act is the assurance which it seems to give that it was the desire and intention of Congress that the railroads should be permitted to earn a fair but not excessive return upon the aggregate value of their property devoted to the public use, and also that Congress recognized that it was necessary in the public interest that the railroads should be able to maintain a satisfactory credit in order that they might be able to obtain the large amount of new capital needed each year for additions and betterments.

While the Interstate Commerce Commission previous to the passage of the Transportation Act had developed and adopted a mode of procedure in dealing with rate matters substantially in accord with the rule contained in section 15a, such procedure did not have a statutory basis, nor had it received the definite approval of Congress, and there was no assurance that with a changing personnel on the commission the method of procedure which had been gradually built up might not be adversely changed. When, therefore, Congress itself, after carefully surveying the whole situation, gave its endorsement to the plan which the commission itself had developed in practice, and in that connection also said that in the future it should be the duty of the commission to fix rates which should yield as nearly as may be a fair return upon the aggregate value of the property used for transportation purposes, there was created a basis for justifiable confidence on the part of the investing public that the practice so approved by Congress itself would not be abruptly changed or departed from. Section 15a was intended to inspire confidence in the fairness and stability of our scheme of railroad regulation, and if Congress were now to withdraw the assurance and thereby repudiate the policy reflected in section 15a, I am sure that it would be looked upon as equivalent to saying that Congress was now unwilling to approve of a policy which simply assured to the railroads, as nearly as may be, but without guarantee, a fair return upon the lawfully ascertained value of their property devoted to the public use.

Personally, I am unwilling to believe that Congress is yet ready to make such pronouncement concerning the railroads. While it is true that so far the railroads have not realized under the act that measure of return which Congress itself said would be fair, they have, nevertheless, been encouraged to believe that their failure to realize what Congress evidently had in mind, was due to no defect in the act but rather to the difficulties of an economic situation brought about by the great war, and they continue to hope—and I speak as one having first-hand knowledge—that as conditions become more stabilized the railroads will be able to realize the return which Congress itself has said would be fair, and which is unquestionably necessary if the railroads are to accom-

plish the purpose Congress had in mind. The underlying basis for that belief is contained in the very words which Congress caused to be written in section 15a of the Transportation Act, the repeal of which is now under consideration.

On April 5, 1923, the Association of Railroad Executives reported that the railroads of the country had authorized expenditures for equipment and other facilities during the year 1923 amounting in the aggregate to $1,100,000,000.

I doubt very much if the railroads as a whole would have been willing to obligate themselves to such an enormous expenditure had it not been for the assurances (implied at least) contained in section 15a of the Transportation Act, 1920.

While section 15a assumes to fix a minimum which the railroads are permitted to earn, as nearly as may be, it also fixes a maximum, and it is made the duty of the Interstate Commerce Commission to reduce rates if the earnings exceed the maximum. Although the railroads as a whole fell far short in 1923 of earning the rate of return designated by the commission as fair, nevertheless the relief granted the public was no less substantial than it would have been if the conditions of that year had really justified the rate reductions which were actually made.

I do not say that the repeal of section 15a would be fatal to private ownership of the railroads; no one can speak with certainty concerning a matter of that kind, but I do say that the immediate effect of such a course would certainly be reflected in a serious loss of confidence in railway securities—it could not be otherwise—which would be directly and at once reflected in the rate of interest which the railroads would be required to pay upon the new capital needed for additions and betterments, and for the refunding of maturing securities. It would make the raising of such new capital not only more difficult than it has been in the past, as well as more expensive, but would undoubtedly make it well-nigh, if not quite, impossible for many of the companies to secure new capital at all. Under such circumstances the railroads would be unable to provide the additional facilities required to take care of our growing commerce, the railway system as a whole would become inadequate and in the end the commerce of the country and the people interested in the uninterrupted flow of commerce would suffer great harm. The measure of their suffering and of their loss resulting from inadequate transportation would be many times greater than any possible loss resulting from a basis of rates somewhat higher perhaps than might be thought necessary.

At the present time the Interstate Commerce Commission, acting under the instructions contained in the act, has fixed 5¾ per cent per annum as a fair rate of return on the carriers' property devoted to transportation purposes. Certainly no one can claim that that rate of return is unfairly or unreasonably high, and least of all can the government or Congress urge such a claim when it is recalled that the railroads under the provisions of section 15a itself are required to pay 6 per cent per annum on money borrowed from the commission, and that they are now paying that rate on more than $500,000,000 which they owe the government.

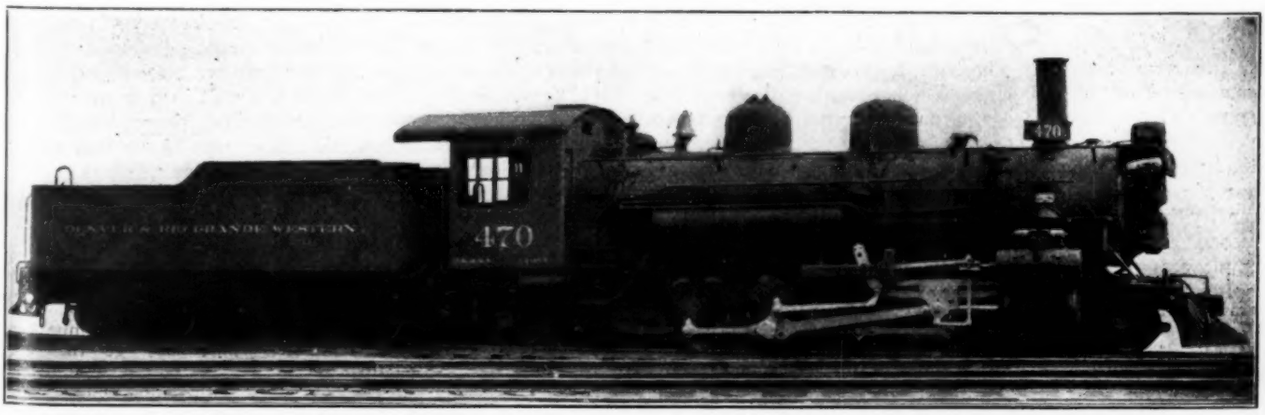
I know it is claimed by some that the basis of valuation fixed by the commission on which the rate of return should be calculated is in itself too high, but how are we to judge whether the amount so fixed is in fact too high or too low? The Interstate Commerce Commission, the agent of Congress itself, in Ex-Parte 74 fixed the tentative value of the railroads for rate-making purposes in harmony with the instructions issued by Congress, and with due consideration to the decisions of the courts concerning such matters. It has been repeatedly stated in Congress and elsewhere that the fixing of value is not a legislative function, and in the end it is a question to be determined by the courts. What better guide, therefore, could the commission find for its action than such guidance as is to be found in the numerous decisions of the Supreme Court regarding such matters? I recognize, of course, that there are certain mooted questions related to valuation concerning which the court has not yet spoken the final word. I firmly believe that if Section 15a should be repealed, the increased rate of interest which the railroads would be required to pay for new capital, assuming they could obtain it, would be far in excess of any saving to the public that could possibly result from such a course.

While I do not claim or believe that the last proper legislative ward has been spoken concerning the railroads, I have said repeatedly, and still believe, that the Transportation Act, 1920, was the most constructive piece of legislation of that character that has ever been enacted in this country, certainly within my generation, and I have also said that it is my belief that if the act is sympathetically interpreted and applied, that it will be found, as conditions become stabilized, that the railroads will be able to carry on successfully thereunder.

I firmly believe that if the Transportation Act is left in its present form and given a sufficient trial to further test its merits under more stable conditions, that it will be found that the railroads owned and operated under the terms of the act, in coordination with water and other forms of transportation, will continue to be able to furnish the people of this country with adequate transportation at reasonable rates.

Senator Pittman of Nevada has introduced a bill, S. 2964, to amend paragraphs 3 and 4 of section 13 of the interstate commerce act, relating to the relations between state and interstate rates. After providing for conferences and cooperation between federal and state commissioners and authorizing the Interstate Commerce Commission to prescribe rates to remove discriminations caused by the action of state authorities, the bill contains a proviso "that no rate, fare, charge, or classification or any regulation or practice with respect to rates, in intrastate commerce, made or imposed by authority of any state, shall be changed or set aside unless the same shall be found, from competent evidence, to injure a person or persons, or seriously to retard the growth and development of such locality or localities, and unless the same shall also be found, from competent evidence, to be unreasonable under the traffic and transportation conditions existing in such state, and under honest, efficient and economical management and operation."

Senator Pittman has introduced another bill, S. 2982, providing for the construction, operation and abandonment of purely intrastate railroads, none of the stock or bonds of which are owned by any carrier extending from one state into another, if they elect to proceed without assuring themselves of the benefits of section 15a, without obtaining a certificate of convenience and necessity from the Interstate Commerce Commission, and without procuring authority from the commission for the issuance of securities. It is also provided that in such case nothing shall be included for the value of such a property in any determination of aggregate value of railway property for rate-making purposes.



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P. E. Crowley to Head New York Central

Directors Adhere to Policy of Selecting Operating Man— A. H. Harris in Charge of Finance

P. E. Crowley, hitherto vice-president in charge of operation of the New York Central, was on Wednesday elected president and a director of the New York Central Lines to fill the vacancy caused by the death of A. H. Smith.

A. H. Harris has been appointed a member of the finance committee to fill the vacancy caused by the death of Mr. Smith and elected to fill the newly created office of chairman thereof. He will also continue as vice-president in charge of finance and corporate relations.

George A. Harwood, formerly assistant to the president, was elected vice-president of the New York Central Lines in charge of corporate improvements.

Raymond D. Starbuck, assistant vice-president in charge of operation, succeeds Mr. Crowley.

Mr. Crowley has outstanding reputation as an able operating officer. The selection of him by the directors marks adherence to the policy followed for several executive administrations of the New York Central of entrusting the destinies of the system to a leader who has come up through the operating department. Mr. Crowley's activity will be supplemented by that of Mr. Harris upon whom will devolve direction in matters of finance and intercorporate relations. Mr. Harris thus continues, but now with greater responsibility and higher rank, the work in which he specialized while Mr. Smith was president.

P. E. Crowley

Mr. Crowley has put himself on record to the effect that it will be his intention to follow through with the policies of Mr. Smith, which means that he will essay to carry to conclusion the several developments which Mr. Smith originated but which had not been brought to fruition at his death. The New York Central has made an unusual record in operating efficiency during the past few years. The selection of Mr. Crowley is regarded by those in a position to be informed as guaranteeing that this operating efficiency will proceed without interruption. Mr. Crowley has himself said that one of the most important problems confronting the railroads today is personnel relations. He is recognized to have had particular success in his relations with employees.

It is not easy to analyze to a final conclusion the reasons for the favorable position in which the New York Central has been for the past few years. It is partly due to good strategic location and also to willingness and ability to spend money for additions and betterments, as needed, to improve the efficiency and economy of the service, to skilled operating management and to a good esprit de corps. The latter two features are particularly the result of the activity of Mr. Crowley as vice-president in charge of operation. His selection as president is a recognition of his ability along these lines and, as already noted, is a guaranty of their continuance and further improvement.

Mr. Crowley came up through the ranks. His first job on a railroad was as a messenger boy and his wages totaled $5 a month. He later became an operator, then a dispatcher and rose in the usual manner in such cases through the ranks of trainmaster, superintendent, assistant general superintendent, assistant general manager, general manager and vice-president. It is said of him that he still retains the friendships of those lower down in the ranks and has an unusual acquaintance personally with the men on the road. When he was a dispatcher he was a member of the Order of Railroad Telegraphers and still retains his card. Mr. Crowley is not a large man physically; his build is not such as one usually associates with the position of general manager or operating vice-president. He is gracious in his manner and no one can talk with him without gaining immediately an impression that his reputation for friendliness to the rank and file, for uniformly just dealings with the employees and for force and ability as a manager is well founded. He is like President Coolidge in being devoted to duty night and day and impervious to all weakening distractive influences. He is also praised as is Mr. Coolidge for his ability as a master of reticence.

Mr. Crowley is 59 years of age. He has been in railway service since he was 14 and in the employ of the New York Central since he was 25. He was born at Cattaraugus, N. Y., on August 25, 1864. While he was still in grammar school he secured a job as a messenger boy in a telegraph office and worked after school hours. When he was 14, he took up the study of telegraphy and became an operator on the Erie. In August, 1885, he was made a train dispatcher which position he held until February, 1889, when he became a train dispatcher on the New York Central & Hudson River. One year later, in May, 1890, he was made a chief train dispatcher and in August, 1891, he was promoted to trainmaster. He served as trainmaster until September 12, 1900, when he was made chief trainmaster. On August 24, 1901, he was appointed superintendent of the Pennsylvania division, which position he held until December 26, 1904, when he was appointed assistant general superintendent with headquarters at

Syracuse, N. Y. On March 1, 1907, he was promoted to assistant general manager with headquarters at Albany, N. Y., which position he held until April 15, 1912, when he was promoted to general manager with headquarters at New York City.

On December 23, 1914, he was appointed assistant vice-president in charge of operations of the road now become the New York Central, and on January 1, 1915, became assistant vice-president in charge of transportation and equipment maintenance. He was elected vice-president in charge of operation on September 14, 1916, which position he has held since that time until his election as president, except for the federal control period, when he was federal manager. He was federal manager from June 10, 1918, to March 1, 1920. When the railroads were returned to private control he was elected vice-president in charge of operation of the New York Central, the Ottawa & New York, the Adirondack & St. Lawrence, the Raquette Lake and the Fulton Chain Ry., all parts of the New York Central. In 1922, his jurisdiction was enlarged to include the Toledo & Ohio Central, the Kanawha & Michigan, the Kanawha & West Virginia and the Zanesville & Western, hitherto properties of the New York Central System but at that time becoming integral parts of the New York Central Railroad by lease.

I. C. C. Sees No Need of General Rate Overhauling

Would Involve Much Time and Expense and Might Not Accomplish Desired Result

WASHINGTON, D. C.

THAT THERE SHOULD be no attempt radically to revise the general freight rate structure at this time but that moves towards important changes should be undertaken only where in particular situations sound ground and necessity for change exists, is the position of the Interstate Commerce Commission as expressed by Commissioner Esch at a hearing before the House committee on interstate and foreign commerce on April 3 and 4 on the resolution introduced by Representative Hoch to direct the commission to make a general readjustment of rates.

Secretary Hoover of the Department of Commerce appeared before the committee on April 9 and urged the importance of an exhaustive investigation by the commission as to the need for a general readjustment of the rate structure as a foundation for a possible reorganization. He did not advocate changes in the rates, and he said that if the commission will make an investigation to see whether or not changes ought to be made, as it has been conducting some studies along this line, perhaps the resolution is not necessary, but he referred to the present rate structure as a "hodge-podge" and said he thought there could be no question as to the desirability of an investigation. Chairman Winslow read a letter from Alfred P. Thom, general counsel for the Association of Railway Executives stating that the railroads have no objection to the resolution. B. B. Chain, vice-president of the American Short Line Railroad Association, said he did not oppose the resolution although he thought that the results of an investigation would be disappointing to those who expected rate reductions. He proposed an amendment to require the commission to give consideration to the divisions of rates so that the short lines would not be required to lose revenue.

Mr. Hoover said the resolution contemplates a reconsideration of the entire rate structure with a view to the determination of its inequities, which have been the subject of a great deal of criticism. One of the most constructive criticisms of the rate structure, he said, was the report of a special committee to the transportation conference called by the United States Chamber of Commerce, which he commended to the consideration of the committee. One of the principal difficulties in a reorganization of rates, Mr. Hoover said, lies in the lack of diversity of traffic on many of the railroads and a reorganization could be more easily accomplished after consolidations of the roads. One of the outstanding points of criticism of the rate structure as he saw it is the relation between l.c.l. and certain class rates and the rates on primary commodities which he defined to include agricultural products, coal, iron and lumber. The l.c.l. rates, he said, are probably not particularly profitable to the railways and they are lower in proportion to the service than the rates on primary commodities and likewise some class rates are relatively too low. An exhaustive study as the foundation for an extensive reorganization seems desirable, Mr. Hoover said, and after some conferences between representatives of the Interstate Commerce Commission and of his department the commission has made some progress with such a study. The purpose of the resolution is that an adequate study of that kind should be made, and his idea was not that the resolution should provide for the reorganization of rates but for a determination of facts to see what changes should be made. Mr. Hoover's statement was brief but his ideas were brought out more in detail under questions by members of the committee.

With the possible exception of agriculture, Mr. Esch said, the commission's practical experience in dealing with rates and transportation during the past two years "does not indicate any general demand or necessity for a general important or sweeping adjustment of rates," and in a prepared statement he pointed out many objections to the idea which has been prominently advanced of late that rates on "basic" commodities or agricultural products be reduced and offset by advances in rates on high grade articles or "luxuries."

The commission, Mr. Esch said, is not expressing any opinion for or against the proposed resolution but regards the question as one of policy for Congress to settle, and if the policy is to be adopted it believes the resolution as drafted would suit the purpose, except that he pointed out that it carries no appropriation, whereas a general investigation of all rates along the lines suggested by the resolution would be a colossal task, requiring several years to complete, and would involve considerable expense in excess of the appropriations for the commission's ordinary work.

The commission has not been oblivious, Mr. Esch said by way of preface, to the frequently expressed feeling that a revision of the rate structure might be desirable and in March of last year it appointed a committee consisting of Director W. V. Hardie of its Bureau of Accounts, M. O. Lorenz, director of its Bureau of Statistics, and W. A. Disque, attorney-examiner, to study the question. This committee has made one or two reports of progress to the commission. He also cited several cases recently decided or still pending in which the commission has sought to bring about rather wide-spread revisions, such as those in the Mississippi Valley rate structure and the general revision of class rates in the southeastern territory, and he called attention to the fact that greater reductions have already been

made in rates on agricultural products, since the advances in Ex Parte 74, than in rates generally. In connection with the subject of giving greater relief to agriculture he said that any advances in the rates on articles bought by the farmer would to some extent offset any saving to result from a reduction in the rates on what he sells. He suggested a possibility of relief for the western farmers in the fact that the eastern and southeastern carriers have been showing better earnings than the western roads, which he said might make possible some reductions in through rates from the east to the west. Commissioner Esch then read a prepared statement in part as follows:

Should There Be a General Shift of Rates to Place a Greater Burden Upon High Grade Commodities?

At the hearings before the Interstate Commerce Commission in the 1922 reduced rates case, many who appeared advocated applying such reductions as should be made wholly or largely to "basic" commodities, i.e., low grade commodities, as to which transportation charges are a comparatively high percentage of the price. The commission's decision to reduce the rates generally, in a manner similar to that in which they were increased; that is, on a percentage basis, was intended to settle this issue for a time at least, to bring about a cessation of freight rate agitation and establish a more or less stable adjustment of rates which would afford a reasonably satisfactory basis for the commerce of the country. In fact, the readjustment made has met with rather general satisfaction. Outside of agriculture, prosperity has been almost universal and the traffic of the carriers of the country has been the greatest in their history. Were it not for the adverse economic situation of agriculture, apparently there would today be little or no freight rate agitation and rate complaints would be largely, if not wholly, of the kind that has prevailed ever since the act to regulate commerce was passed in 1887, viz.: individual situations where rates are considered by interested parties to be unreasonable or discriminatory. The demand for reductions on "basic" commodities independent of traffic in general and for a readjustment of the rate level to place a greater burden upon high-grade commodities, and less upon articles of low value, has in large measure, though not wholly, disappeared.

There is no general understanding of precisely the commodities which should be considered "basic," though several lists have from time to time been suggested. They may, however, roughly be defined as raw materials entering into the manufacture of other articles, the staple necessaries of life and practically all low-grade commodities upon which transportation charges are relatively a large percentage of the price. Apparently the proposal to reduce the level of rates on "basic" commodities was the outgrowth of the sharp price declines which accompanied the depression of 1921. Because transportation charges in that year were at the peak, the price declines on many raw materials resulted in a greater percentage of transportation charge to price than had theretofore existed.

The 1922 Case

In its decision in the 1922 reduced rates case, the Interstate Commerce Commission fully considered the contentions of those advocating reductions on "basic" commodities and in that decision made the following observation:

> "We are of opinion that *general* reduction in the rate level, as substantial as the condition of the carriers will permit, will tend not only to lessen the transportation burden, but also to equalize and stabilize the conditions under which commerce and industry are carried on. * * * The needs of commerce cannot be met if rates are to fluctuate with market prices of commodities. In bringing down the rate level to meet lowered expenses * * * the reductions should be made generally upon all commodities in substantially equal ratio."

It is true that the commission at that time was faced with the necessity of prompt action, and as its decision declining to treat "basic" commodities differently from others may by some be said to have been in part due to the difficulty of readjusting the rate structure within the time available, the decision then made need not be accepted as controlling at this time, but the situation now existing should be analyzed to determine whether any attempt to generally revise the rate structure should now be made.

In 1920 prices of raw materials advanced to a level relatively much higher than that of freight rates, including the 1920 increases. For example, during the period when freight rates in the eastern group rose to 211 per cent of the prewar basis, the price of pig iron rose from $14.68 to $42.76 per gross ton, the latter figure representing an index number of 291, 1913 treated as 100. The "basic" commodity witnesses in the 1922 case were inclined to overlook the increase of $28.08, or 191 per cent, in the mill price of pig iron, and to attribute the temporary depression they were then suffering to the increase of 111 per cent, amounting in this instance to approximately $3.90 per ton, in the freight rate from the mill to the market. Some even insisted that their business could not revive without the removal of the 1920 freight rate increase.

Rates on "basic" commodities were not in fact heavily reduced in the 1922 case or since. They received only the same 10 per cent reduction accorded other commodities. And yet industry has revived. The car loading of all freight, "basic" commodities included, in 1923 was greater than in the same months of any previous year. It should not be inferred that the revival of industry necessarily directly resulted from the general 10 per cent reduction of 1922, or that it was caused by the fact that rates on "basic" commodities were not reduced in greater proportion than rates on high-grade traffic. Manifestly the revival of industry was primarily the outgrowth of many factors other than freight rates, such as the shortage of stocks resulting from the depression of 1921, the demand for more adequate housing, the more optimistic turn in the national attitude of mind, and many others. The only inference fairly to be drawn from the revival of industry and its operation at full vigor for nearly a year without a general shift in freight rates, is that recent experience does not demonstrate the necessity for any such shift, and that if it is to be made, it should be because, upon its own merits, the present rate structure can be shown to need general overhauling sufficiently urgent to justify risking possible disruption of business as a result.

Percentage Increases

It has been stated that the percentage increases allowed by the director general and the commission were "unscientific" and have resulted in applying the burden too lightly upon high-grade and manufactured articles and upon costly services, such as short hauls, switching and l. c. l. movements, and too heavily upon "basic" commodities, resulting in making transportation charges on the former relatively too small a percentage of the value, and upon "basic" commodities too small a percentage, thus unduly raising cost of production and manufacture. The soundness of this theory is not apparent. Freight rates on both high-grade and low-grade commodities having since 1913 increased in substantially the same percentage, if prices had likewise increased in the same percentage, the proportion remains the same. For example, if before the war the average freight charge on a low-grade commodity was 50 per cent of its value, and upon a high-grade commodity 10 per cent of its value, that ratio still remains unless the prices of low-grade commodities have increased in a different ratio from that of the price of high-grade commodities. We have no information that the latter, outside of agriculture, is generally the case, though undoubtedly individual cases both ways can be cited.

The trade and commerce of the country have grown up under the present rate structure, and any material disturbance therein will probably cause disruption of business conditions, with possible serious effects upon large sums of vested capital. For example, where large factories have been purposely located close to the source of supply of raw materials, but comparatively distant from the market for the finished product, based upon the relative freight rates existing, to now materially subtract from the rates on raw materials and add to the rates on manufactured articles, conceivably may make necessary the removal of such factory to a location closer to the market for the finished product.

Radical Revision of Rate Structure Inadvisable

It therefore appears that we find little in the percentage increases which have been made to indicate the necessity of shifting the level of rates on "basic" commodities as compared with other rates, and except where rates were improperly apportioned in 1913, or where conditions have since changed, there is no reason to believe that a general readjustment is needed today. This is not to say that all rates were properly apportioned in 1913, that they are all properly apportioned today, or that there should be no progress in the regulation of rates. It is only intended to indicate that the existing rate situation, built up as a result of commercial and transportation conditions and based upon the best judgment of the carriers and the commission, on the whole fairly well meets the needs of commerce, and that particularly at this time when any unnecessary disturbances may tend to check the industrial prosperity, there should be no general attempt to radically revise the rate structure, but that moves towards important changes should be undertaken only where in particular situations sound ground and necessity for change exists.

Rates Should Not Fluctuate With Price Levels

It has been stated by the Joint Commission of Agricultural Inquiry and others that freight rates should be revised by federal and state regulatory bodies on a basis which gives greater consideration to existing and prospective economic conditions and to the relationships existing between the price level of commodities and the level of transportation rates, as well as the relationship existing between the price of different commodities. To follow

this theory really means that freight rates should fluctuate with price levels. The commission dealt with the question in *Reduced Rates, 1922*, and concluded that as rate stability is one of the important needs of commerce, rates should not ordinarily fluctuate with prices. Rates, to have followed price changes in the past ten years, would have had to have been in a constant state of fluctuation, destroying all stability and undoubtedly doing far more harm than good. It should further be remembered that rate changes cannot, in the very nature of things, be made contemporaneously with price changes, and that by the time rate changes can be made, the price situation has frequently again changed.

It appears that under ordinary conditions no attempt should be made to have rates fluctuate with price changes. However, possibly both the carriers and the commission in making necessary rate readjustments should bear in mind to a greater extent than they have heretofore done the relative price levels of commodities and should have even greater regard than heretofore for the principle of "what the traffic will bear" in fixing freight rates. This should not be construed as indicating that this factor should supersede all others or indeed be controlling in many cases. Except where, by the usual tests, rates on basic commodities can be shown to be unreasonable, or where a lengthy or apparently permanent shift of price levels has taken place, it is not clear that recent experience has indicated the necessity of greater fluctuation of rates with price levels.

Where Can the Increases to Compensate for Reductions on Agricultural Products Be Obtained?

During no calendar year since the Transportation Act, 1920, was enacted have the carriers of the United States or in any one rate group earned a net railway operating income equal to 5¾ per cent upon the tentative valuation of their properties devoted to transportation as fixed by the commission. The act requires the commission to initiate rates which will as nearly as may be produce for the carriers of each rate group a fair return, and the commission has fixed that fair return at 5¾ per cent. Unless, therefore, rates are to be reduced below a basis which in the judgment of the commission will comply with the terms of the statute and produce as nearly as may be a fair return, it becomes necessary, before deciding upon any readjustment or realignment of rates which will result in material reductions in the net revenues as a whole, to ascertain where compensating increases may be found, a task easier mentioned than accomplished.

While there is no general understanding as to the commodities which should be considered "basic," for purposes of this discussion a separation has been made between basic and non-basic commodities, based upon the commission's press notice of May 11, 1923, giving estimated freight revenue of Class I roads by classes of commodities for 1922. Tobacco, cotton, miscellaneous products of agriculture not specifically classified, poultry, eggs, butter and cheese, hides and leather, miscellaneous animal products not specifically classified, ores other than iron ore, base bullion and matte, manufactures (excluding pig and bar iron, cement, brick, lime, plaster, sewer pipe, drain tile, and fertilizers) and all l. c. l. traffic were considered as high-grade traffic and all others as "basic." The result is shown in the following table, which indicates that in the United States as a whole, "basic" commodities constitute 78.77 per cent of the tonnage and provide 65.57 per cent of the revenues.

TONNAGE AND ESTIMATED REVENUE OF BASIC AND HIGH GRADE COMMODITIES

1922

	Tons		Revenue	
	Number	Per cent	Amount (thousands)	Per cent
Eastern District—				
Basic commodities	772,697,096	77.72	$1,139,584	66.75
High Grade	221,487,987	22.28	567,565	33.25
Total	994,185,083	100.00	$1,707,149	100.00
Southern District—				
Basic commodities	264,444,717	84.11	$458,639	72.16
High Grade	49,954,530	15.89	176,908	27.84
Total	314,399,247	100.00	$635,547	100.00
Western District—				
Basic commodities	427,605,518	77.62	$962,759	61.60
High Grade	123,294,628	22.38	600,087	38.40
Total	550,900,146	100.00	$1,562,846	100.00
United States—				
Basic commodities	1,464,747,331	78.77	$2,560,982	65.57
High Grade	394,737,145	21.23	1,344,560	34.43
Total	1,859,484,476	100.00	$3,905,542	100.00

It has been stated by some of the principal advocates of reductions on "basic" commodities that the 10 per cent reduction made by the commission in 1922 was too small to be of benefit, and therefore a reduction of that amount on "basic" commodities would apparently be considered of no avail. Based upon the above separation, to make a 16⅔ per cent reduction upon "basic" commodities would require a 32 per cent increase on all other freight traffic, carload and less-than-carload. To make a 20 cent reduction on "basic" commodities, an increase of 38 per cent on all remaining freight traffic would be necessary. In the east, where rates are now 90 per cent above the 1913 level, they would on non-basic commodities be brought up to about 151 per cent above that basis if increased 32 per cent, and up to 162 per cent above that basis, should a 38 per cent increase be made. In the event of a 38 per cent increase, the first and fifth class rates from Chicago to New York, which were 75 cents and 30 cents, respectively, would become $1.97 and 79 cents, respectively.

The above table shows that the proportions of basic to non-basic commodities in the different districts vary greatly. Therefore, the effect of reductions on "basic" commodities would not be uniform.

The net railway operating income for 1922, had the rates on "basic" commodities, according to the above separation, been 20 per cent lower, would have been as follows:

	Amount	Rate of return (Per cent)
Eastern	$73,880,251	.94
Southern (incl. Pocahontas)	58,943,754	1.97
Western	131,645,955	1.59
United States	$264,469,960	1.36

In the southern district "basic" commodities provide 72.16 per cent of the total freight revenue. A reduction of 20 per cent on "basic" commodities would therefore in that district require an increase of 52 per cent in rates on all remaining freight traffic. In the west, the required increase on other traffic would not be so much.

Up to this point, consideration has been given only to obtaining the necessary compensating revenue from all rates not included in the "basic" list. But there are manifestly many articles which would not be considered basic, but as to which there is probably as much need and justification for rate reduction as for many in the "basic" list. Recognizing this fact, advocates of "basic" commodity reductions have generally proposed limiting compensating increases to "luxuries" or "class rate traffic." No list of "luxuries" appears to be available, but surely considerably less than half of the non-basic commodities under the above separation would be so classed, when it be remembered that such staples as the following are included under that head: refined petroleum and its products; vegetable oils; sugar and molasses; agricultural implements; farm wagons; ice; canned goods. There appears to be no way of definitely separating the revenue derived from "luxuries" from the total revenue, but if we assume that one-fourth of the revenue from non-basic commodities under the above separation be derived from "luxuries," it will be found that to allow for a 16⅔ per cent reduction on "basic" commodities an increase of 127 per cent on "luxuries" would be necessary; and to compensate for a 20 per cent reduction on "basic" commodities, the rates of "luxuries" would have to be increased 152 per cent. The effect of an increase of the latter amount in the eastern territory would be to bring rates on "luxuries" up to over 479 per cent of the basis in force in 1913. For example, the first-class rate from Chicago to New York would become $3.59. Possibly such articles as the higher grade dry goods, clothing, shoes and notions could stand such increases, but it is probable that such rates on furniture, household goods and many others would defeat the desired end. Many new automobiles are now being driven across country for considerable hauls to avoid freight charges. Should rates be increased from 100 to 150 per cent, it is probable that the movement by railroad would be seriously affected.

Manifestly there would be almost insurmountable difficulty in definitely classifying articles to designate which should be treated as "basic" and receive a rate reduction which as "luxuries" should be subject to an increase, and which would be treated as neither and be subject to no change in rates. Should hearings be held to determine such a separation, endless dissension between different shippers would ensue. Shippers of commodities likely to receive increases would unquestionably enter objections even more strenuous than were the arguments presented in *Reduced Rates, 1922*, to show that particular commodities should not be overlooked in the distribution of such reductions as should be determined upon. There is a keenly competitive situation between different commodities some of which from a transportation standpoint would fall in one class and some in another, and any such shift of freight rates would probably seriously dislocate commercial conditions.

To avoid the dissension which would result from attempting to select a list of "luxuries" to receive rate increases, some have advocated obtaining such compensating increases as may be necessary from "class rate traffic." It is true that there would be comparatively little tariff difficulty in applying a given percentage of increase to class rates as distinguished from other rates, but such a proposal overlooks three important difficulties: (a) that there are no statistics available showing the amount of revenue derived from class rate traffic so that the amount of increase necessary can be determined; (b) except in the south practically

all less-than-carload traffic moves on class rates. Therefore increases applied to all class rates would, as noted below, inevitably apply to many staples of life; (c) in the different districts (and even in different portions of the same district) the percentage of class rate traffic to other traffic varies materially, a given commodity in some places being subject to class rates and in others to commodity rates. For example, the movement of canned goods, sugar, coffee, and bar, sheet and structural iron in the eastern group and in the western trunk line territory is almost entirely upon class rates, whereas in the south, the southwest, the far west and on transcontinental traffic these commodities move largely upon commodity rates. A similar situation will be found to exist on numerous important commodities and to apply heavy increases on class rates and to reduce or leave unchanged commodity rates will result in disastrous competitive disturbances.

While as indicated there are no statistics which show definitely the amount of revenue derived from class traffic, the appendix shows the proportion of revenue by commodity groups in the various districts. From that appendix it will be noted that less-than-carload traffic earns the following percentages of the total freight revenue: eastern district, 4.34; southern, 7.73; western, 12.09; United States, 7.99. These figures clearly indicate that to obtain material revenue from increases on class rate traffic will be exceedingly difficult, if not impossible, unless it be assumed that there is a very considerable movement of carload traffic upon class rates. In some regions, particularly in the southwest, there is in fact very little such movement.

The importance of the second difficulty in applying sufficient increases to class rate traffic to compensate for material reductions on other traffic should not be overlooked. Particularly in the west, nearly all groceries, furniture, house furnishings and other goods used by ultimate consumers move by less-than-carload freight from jobbing centers to the points of consumption, largely on class rates. The propriety of heavy increases on such staples of life anywhere in the country is seriously to be doubted, but particularly would such a rate readjustment be undesirable in the west and on traffic moving from the east and south to the west, for it would tend to increase the cost of what the farmer buys for use in crop production and for his living. As the principal source of trouble lies in the disparity between what the farmer has to pay for what he buys and what he is able to obtain for what he sells, manifestly such a process would tend to offset any benefit which the farmer might receive from reductions on his products. There are already serious complaints in a number of localities that less-than-carload rates are so high as to be unduly burdensome upon the lower grade traffic, illustrated by the situation in Louisiana where efforts have recently been made to secure the reestablishment of numerous less-than-carload commodity rates in lieu of class rates found reasonable by the commission.

In considering whether or not any general shift of rates should be made, too much importance cannot be laid upon the fact that the movement of commodities on the different railroads and in different sections of the country is far from uniform. For example, on some lines nearly 90 per cent of their total traffic consists of "basic" commodities, whereas on others less than 40 per cent consists of such commodities. Therefore even if it be possible in the aggregate to so increase rates on non-basic commodities as to largely, if not wholly, compensate for reductions on basic commodities, it is evident that some railroads would receive too much additional revenue and others too little. It is highly probable that many railroads would be affected disastrously as the amount of compensating revenue they would receive from the high grade commodities on which rates would be increased would not nearly offset the loss in revenue on the basic commodities. While to some extent the average of carriers can be considered in fixing freight rates, this theory cannot be carried too far without serious results, for it is evident that the people living along one line of railroad are dependent upon that railroad for service and if it be placed in a financial condition such that it cannot give adequate service or it is actually forced to suspend operations, the fact that additional revenue has been obtained for other railroads will be of no avail. No attempt will be made here to cite specific instances except to mention that it was shown in the reduced rates case of 1922 that if the rates on but one basic commodity, coal, should be reduced 25 per cent, the effect on several important carriers would be to cause a deficit inasmuch as such a large proportion of their tonnage consists of coal.

Manifestly the difficulties of obtaining increases to compensate for reductions confined to agricultural products or to grain only would be much less than in the case of "basic" commodities, but still would be material. A reduction of 25 per cent in rates on grain and grain products applied to the results of operation in the year 1922 would have lessened the freight revenue by the following amounts:

Eastern	$28,386,200
Southern (including Pocahontas)	9,150,000
Western	51,342,800
United States	88,879,000

The following is an estimate of the net railway operating income which would have been earned in 1922 if rates on grain and grain products had been 25 per cent lower:

	Amount	return Per cent
Eastern	$273,411,051	3.33
Southern (including Pocahontas)	141,520,754	4.74
Western	272,855,155	3.30
United States	687,786,960	3.53

If there had been a reduction of 25 per cent on all products of agriculture, and animals and products, the amount of reduction in 1922 would have been:

Eastern	$80,109,800
Southern (including Pocahontas)	32,400,500
Western	126,511,200
United States	239,021,500

The net railway operating income allowing for such a 25 per cent reduction would have been:

	Amount	Rate of return Per cent
Eastern	$221,687,451	2.70
Southern (including Pocahontas)	118,270,254	3.96
Western	197,686,755	2.39
United States	537,644,460	2.76

Should a reduction of 25 per cent be made in rates on grain and its products, the loss in revenue for the carriers of the country as a whole, $88,879,000, could be recouped if an increase of approximately 2.3 per cent could be made on all remaining freight traffic. But that rates on all commodities other than grain can at this time be increased even 2.3 per cent is highly improbable. Such an increase would include all agricultural products other than grain and grain products (including fruits and vegetables, live stock, etc.) and would include all "basic" commodities to say nothing of staple articles of food and other commodities which enter directly into the cost of living of everyone concerned. If an attempt be made to obtain the necessary compensating increases from "luxuries," an average increase of over 26 per cent throughout the country would be needed if we consider that "luxuries" consist of approximately one-fourth of the articles treated as non-basic in the separation above made. On the same basis, an increase of 34 per cent would be needed in the west. It should again be remembered that unless there is to be a complete overhauling of the class rate structure of the country to bring about totally different percentages of the lower classes to first class than now exist (a revision which would require months if not years to accomplish), any increases applied to "luxuries" would probably have to include all traffic moving on the first four classes which would create the difficulty above described, viz.: in many cases in reality making increases on staples of life (moving less than carload) when intending to apply the increases on "luxuries."

Western roads have been earning considerably less in proportion than roads in the east and south and have been considerably below the fair return, while the heaviest movement of agricultural products, including grain, takes place in that region. Appendix No. 7 shows that in the western district products of agriculture yield 24.66 per cent of the revenue as against but 12.77 per cent in the east. Grain and its products in the west yield 13.14 per cent as against but 6.65 per cent in the east and 5.76 per cent in the south. Furthermore, as has been noted in a previous section, the percentage of one class of traffic to another on different roads varies so materially as to add immeasurably to the difficulty of attempting to reduce rates on one class of traffic and increase them on another, because in many instances important roads handle very largely the commodities which would be reduced and but little of those which would be increased, while on others the situation is reversed. For example, on the Great Northern the revenue from grain and grain products in 1922 was 29.03 per cent of the total freight revenue, and to make a 25 per cent reduction in rates on grain and grain products on that road would require an increase on "luxuries" or "class rate traffic" of 75 per cent in order to compensate if these be assumed to yield approximately 10 per cent of the freight revenue. Even if it were possible to make more than 75 per cent increase in class rates or rates on "luxuries," for competitive reasons it would not be possible to make such an increase on one road without making substantially as great increases on other roads. As an illustration should class rates on the Union Pacific be increased but 33 per cent and on the Great Northern 75 per cent, most of the transcontinental traffic moving on class rates now being handled by the Great Northern would move by the Union Pacific or other competitive lines, thus completely defeating the desired end of obtaining compensating increase in revenue for the Great Northern.

Representative Hoch, of Kansas, after explaining the purpose of his resolution, referred to letters he had received from farm and trade bodies emphasizing the need for a reorganization of the rate structure. He said the resolution proposed

nothing of a radical nature and that his thought was not that there should be any "ruthless" dealing with the problem, but that such changes as the commission might decide upon should be made with due regard for all the factors involved.

Representative Cooper, of Ohio, raised the question of adjusting rates to meet price changes. Mr. Hoch said it was not his view that rates should change with prices but that price levels over a considerable period of years should be a factor considered in the making of rates. He said if the commission found that there were not the maladjustments complained of, it would not have to do anything under the resolution in the way of changing rates. Mr. Cooper asked if he thought the carriers could transport wheat at the same rate now as they did in 1913 with increased operating costs. Mr. Hoch said he was not contending for that.

"Does your resolution contemplate the fixing of any rates below the cost of service?" asked Representative Lea of California. Mr. Hoch replied that it did not.

Representative Merritt, of Connecticut, developed the idea that if the commission made a readjustment as contemplated by the resolution, there would still be thousands of individuals not satisfied with the readjustment. Mr. Esch said that was true. Mr. Merritt said he was in favor of the general principle of the resolution but that the question in his mind was whether as a practical matter the way to deal with the problem was not the way the commission is now doing. Mr. Esch said he felt the commission is doing in a gradual manner what the resolution proposes but that its passage no doubt would speed up the work. He referred to the possible cost of the inquiry, saying it was his understanding the Congress appropriated $500,000 for the work of the Joint Commission of Agricultural Inquiry.

R. S. French, general manager and secretary of the National League of Commission Merchants, and also representing the Western Fruit Jobbers' Association, and W. I. Drummond, chairman of the board of governors of the International Farm Congress of America, appeared in support of the resolution.

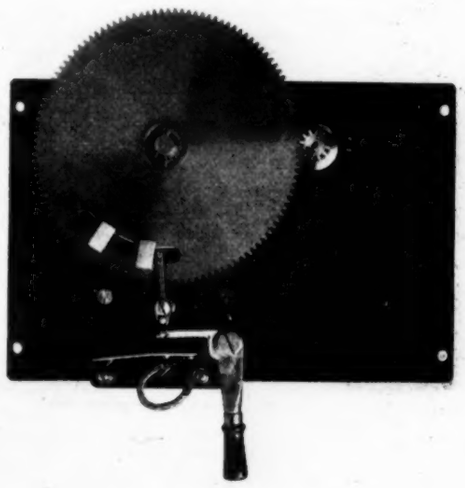
APPENDIX NO. 2

PROPORTION OF GROUP REVENUES TO TOTAL FREIGHT REVENUE
(Based on estimated revenue for 1922 tonnage at present rates)

Commodity	Eastern District. Per cent	Southern District. Per cent	Western District. Per cent	Total. Per cent
Products of Agriculture—				
Wheat	1.31	.96	5.83	3.06
Corn	1.68	1.68	2.89	2.16
Oats	.80	.82	1.01	.89
Other grain	.34	.20	.96	.57
Flour and meal	1.45	1.11	1.52	1.43
Other mill products	1.07	.99	.93	1.00
Hay, straw and alfalfa	.69	.69	.75	.71
Tobacco	.16	.72	.05	.21
Cotton	.32	2.12	1.23	.97
Cotton seed and products, except oil	.04	.74	.36	.28
Citrus fruits	.35	2.14	1.02	.91
Other fresh fruits	1.79	2.76	4.53	3.05
Potatoes	1.23	.08	1.38	1.20
Other fresh vegetables	.57	1.47	.85	.83
Dried fruits and vegetables	.20	.10	.73	.39
Other products of agriculture	.77	.55	.62	.67
Total	12.77	17.73	24.66	18.33
Animals and Products—				
Horses and mules	.04	.13	.16	.10
Cattle and calves	.67	.55	2.94	1.56
Sheep and goats	.11	.05	.60	.29
Hogs	.56	.38	1.41	.87
Fresh meats	1.47	.29	.67	.96
Other packing house products	.79	.62	.48	.64
Poultry	.38	.08	.19	.26
Eggs	.44	.18	.33	.36
Butter and cheese	.36	.10	.30	.29
Wool	.20	.02	.15	.15
Hides and leather	.46	.12	.17	.29
Other animals and products	.52	.14	.32	.38
Total	6.00	2.66	7.72	6.15
Products of mines, total	35.94	35.72	17.68	28.59
Products of forests, total	5.55	14.39	11.06	9.20
Manufactures and miscellaneous, total	35.40	21.77	26.79	29.74
Merchandise—All L.C.L. freight	4.34	7.73	12.09	7.99
Grand total, carload and L.C.L.	100.00	100.00	100.00	100.00

A Limit Switch for Hoisting Equipment

A LIMIT SWITCH to safeguard hoisting equipment against overwind has been developed by the Roberts & Schaefer Company, Chicago, for use on coaling station and other electrically driven hoist equipment. It consists of a gear wheel driven by a spur gear secured to the end of the drum hoist shaft, the relation of the sizes to the large and small gears being such that the large gear makes less than a complete revolution for the normal operation of the drum in service. The large gear is fitted with a circumferential slot into which two lugs are fitted in such positions that they will engage a trigger at the proper limits of the drum travel and thereby trip a spring switch which is wired between the terminals of electrical control boards. The result is that in case the drum should overtravel, the spring switch automatically functions, breaking the current and setting the solenoid brake.



The Ross Limit Switch as Mounted on the End of an Electric Hoist

The device is designed for an average travel of 128 ft. vertical lift, using a 36-in. drum, but may be applied to any hoist having a shorter lift. It is easily attached to any electrically driven hoist as it is only necessary to tap a 5/16 in. hole for the drive pinion at the end of the hoist drum shaft. This device, which is known as the Ross limit switch, is designed as a precautionary measure, to supplement other control apparatus to prevent overwinding of the hoist in case of a failure of the other apparatus to function.

THE EXECUTIVE COMMITTEE of the American Wood Preservers' Association, at a meeting on March 11, adopted a resolution opposing any change at this time in the Transportation Act, and has requested members of the association to communicate their views to their senators and congressmen.

THE SHIFTING OF A LOAD of steel underframes on a car in a southbound freight train of the Chicago, Indianapolis & Louisville on the morning of April 4 caused the load to strike the end post of a through truss bridge, 153 ft. long, crossing the Wabash river, four miles from Lafayette, Ind., wrecking the span. Twenty-one cars of the train fell into the river. Estimated loss, $125,000. As the wrecked cars were in the middle of the train no casualties resulted.

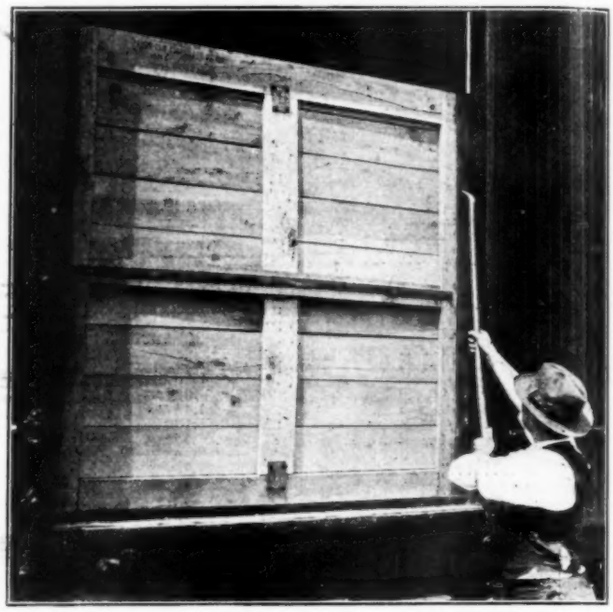
The Paget System of Grain Car Coopering

IN 1920, THE LEHIGH VALLEY, the New York Central and the Delaware, Lackawanna & Western adopted the Paget system of grain door cooperage for grain shipments moving from Buffalo, N. Y., to the eastern seaboard; and this system has been in service since that time with satisfactory results. Approximately 30,000 doors are now in use, handling all grain movements on the three roads mentioned out of Buffalo, whether bound for the seaboard or for local points.

The Paget grain doors are owned, installed, and reclaimed by the manufacturer, who charges the railroad a fixed price per car trip for the service. The manufacturer thus relieves the carriers of the expense of maintaining their supplies of doors, the cost of which can only be arrived at by taking into consideration the interest on the investment, insurance, depreciation, loss by pilferage, improper usage, and total loss of cooperage on cars destined to foreign carriers, a large percentage of which cooperage is never recovered by the issuing carriers. It has been estimated that during 1923 the grain carriers of the United States purchased approximately nine million new 20 in. wooden grain door sections for the coopering of cars, the cost of which averaged approximately 50 cents each.

The Paget patent grain door is a one-piece wooden door, re-enforced by iron bands. The lumber used in the construction of this door is center-matched, thereby preventing any leaks at joints. When installing this door a permanent hardwood jamb or facing is placed on the door posts which not only protects the door posts, but causes the Paget door to fit snugly, and thereby prevent leaks at that point. The door is lifted bodily into place and is clamped to the car door posts with a specially designed device, so that it can be fastened in place in a few minutes. When unloading a car, a bar is used to push up the latches to loosen the door after which it can be raised from the bottom with a bar. The flow of grain then soon releases the door.

After operating this system of grain car coopering in the East for over three years with good results to the carriers, the manufacturers, the Froedtert Equipment Corporation, Milwaukee, Wis., is now introducing the method to the western and southwestern carriers. At the present time the General Superintendents' Association of Chicago, representing 32 carriers entering that city, is considering its adoption for all outbound shipments from that terminal, in conjunction with the Grain Door Agency which is under contract at the present time. It is claimed that the adoption of the Paget system on outbound shipments of grain from Chicago will effect a saving to eastern carriers of $1.50 to $2.50 per car for cooperage alone, while western carriers entering Chicago will be able to reclaim all their cooperage in-bound to that point on their own rails.



When Unloading the Latches Are Loosened and the Door Is Pried Up from the Bottom, Starting the Flow of Grain

Ewing Galloway

Callao, Peru

General News Department

E. E. Loomis, president of the Lehigh Valley and chairman of the Committee on Public Relations of the Eastern Railroads, was a special guest at a New York members' luncheon of the Railway Business Association held at the Railroad Club of New York on April 3.

The Mobile & Ohio has filed a petition with the Interstate Commerce Commission for a hearing and reopening of the automatic train control order of January 14, 1924, to the end that the order be annulled and set aside in so far as it affects that road.

E. M. Zehnder, president of the Scranton Bolt & Nut Company, has been elected a vice-president of the Railway Business Association to succeed the late Stephen C. Mason. Harry Scullin, president of the Scullin Steel Company, St. Louis, has been appointed an executive member to fill the vacancy thus created.

The Delaware & Hudson has been authorized by the Interstate Commerce Commission to make the automatic train control installation required by the commission's order of January 14, 1924, upon its line between Albany, N. Y., and Whitehall, N. Y., instead of upon that portion of its line designated in the order.

A suit to limit the working time of yardmasters to nine hours a day was begun in the federal court at Chicago on April 9 by the Interstate Commerce Commission. The suit is against the Atchison, Topeka & Santa Fe and is said to have been brought on the ground that safety of operation is jeopardized by the present regulation requiring yardmasters to be on duty 12 hours a day.

C. W. Woolford, secretary of the Baltimore & Ohio, on April 7, completed a half century of continuous service with the company. Mr. Woolford has been secretary for the past 27 years. He has been in the service of the Baltimore & Ohio under eight of its 14 presidents and as secretary under four of them. Since 1827 there have been only 5 secretaries of the Baltimore & Ohio, Mr. Woolford being the fifth.

New York Railroad Club to Hear Eminent Economist at Next Meeting

Dr. David Friday, director of research of the National Transportation Institute and generally recognized as one of the ablest economists in the country, will address the New York Railroad Club at its next meeting to be held on April 18 at the Engineering Societies' building, New York, at 8 p. m.

Dr. Friday was formerly professor of economics at the University of Michigan and later president of Michigan Agricultural College. He has made extensive studies in public utility taxation and valuation, railway rates and prices in general. In the course of his studies he has developed some startling facts regarding the relationship of railway rates to other prices and these facts will be disclosed in his address on "Freight Rates, Prices and a Fair Rate of Return."

Personal Thrift on the P. R. R.

The Pennsylvania Railroad reports that 3,901 employees have bought shares of the company's stock through the facilities afforded by the Employees' Provident & Loan Association. The stock owned by these employees now amounts to 19,666 shares ($50 a share), which is in addition to the holdings acquired by employees through other channels. The most popular block of stock is two shares, 1,433 employees having become shareholders to that extent. Purchasers of one share number 992; five shares, 549 employees, and ten shares, 350. Of the total of 19,666 shares, 6,686 were bought outright. Over 500 members are purchasing increased pensions through the Association. Savings accounts have been opened by 13,978 members, and their total deposits now exceed $4,000,000. Seventy-nine members are purchasing homes through loans granted by the Association, and these loans now total $275,435.

C. N. R. Seeking Subsidy From Quebec

The Canadian National will be enriched by over $1,000,000 if the provincial government of Quebec consents to make good certain subsidies in land which the railway claims from the province for the construction of 186 miles of railway executed in the last 20 years by the old Canadian Northern, now forming a part of the C. N. R. This was the subject of a conference last week in Quebec between the Quebec provincial cabinet and W. D. Robb, vice-president of the Canadian National, a number of other officials of that road and the chief engineer of the government, Ivan Vallee. Several years ago the Quebec government, desiring to develop new regions in that province, inaugurated a policy of giving land grants to railway companies building certain sections of lines. According to Mr. Robb the Canadian Northern (Quebec & Lake St. John) built certain lines of their system under that arrangement. The total mileage thus built was about 186 and the average number of acres per mile under the subsidy system was about 2,000, thus making a total land subsidy of about 370,000 acres. It is understood that if the government carries out its bargain the Canadian National will immediately dispose of the land at a price of about $1,500,000.

Bureau of Safety Reports on Split Head

In a report on the derailment of a freight train on the Philadelphia & Reading near Annville, Pa., on November 21, 1923, the wreckage of which was struck by a passenger train moving in the opposite direction on an adjoining track, resulting in the death of one passenger and two employees and the injury of 47 passengers, one news agent and two employees, the Bureau of Safety of the Interstate Commerce Commission gives the cause as a broken rail, resulting from a split head. The rail which failed was of 100-lb. section, rolled in 1920 and laid in track in January, 1921.

The cause of its fracture is given by James E. Howard, engineer physicist of the Bureau of Safety, as being due to a longitudinal seam near the center of the head. The fracture developed vertically, splitting the head into halves and extended lengthwise the rail nearly half its length. In its course it followed the seam in the head for the greater part of its length, but deflected toward the gage side as it approached the receiving end. In the latter part of its course the plane of rupture passed through metal microscopically sound.

Mr. Howard stated further that there is a tendency to underestimate the gravity of split head rails, due to the circumstance that detection is possible at certain stages in their development. The ratio between width and depth of fracture is so unfavorable, however, that difficulty is presented in the early detection of split head rails. The minor and not the major dimension of rupture only affords the means of detection. Slag inclusions located in the central part of the head lead to the development of split heads, when in flattened shapes, and probably when in closely associated acicular groups.

Split head rails, at times, admit of detection. A dark streak along the middle of the running surface is an accepted manifestation of a split head. Lateral expansion of the head is slight in amount, compared with the vertical depth of the fracture and therefore affords a somewhat precarious warning of the extent of the fracture. Its inadequacy as a reliable index of the gravity of the case is probably the reason for the occurrence of derailments arising from this cause rather than disregard or neglect of the indications.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1924

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net operating income.	Net op. income 1923.
Akron, Canton & Youngstown.....Feb.	170	$230,005	$743	$240,119	$25,112	$22,897	$8,999	$69,052	$9,665	$135,725	56.50	$104,394	$89,766	$68,411	$47,101
2 mos.	170	427,067	1,528	446,536	49,439	44,452	16,627	131,998	18,463	260,979	58.40	185,557	156,523	108,230	80,382
Alabama & Vicksburg.....Feb.	141	206,059	57,779	282,834	50,020	48,185	9,454	95,668	12,658	217,952	77.10	64,882	40,825	45,538	30,881
2 mos.	141	400,826	124,836	564,141	114,676	101,592	19,027	207,544	27,690	474,658	84.10	89,183	47,312	56,267	110,041
Vicksburg, Shreveport & Pacific...Feb.	188	229,939	85,862	340,513	57,207	69,545	12,383	121,957	14,930	278,420	81.80	62,093	44,275	25,875	44,020
2 mos.	188	452,136	182,226	685,144	129,251	146,996	24,639	252,255	29,678	587,878	85.80	97,266	58,260	18,550	111,004
Ann Arbor.....Feb.	293	395,355	39,054	448,632	42,997	83,361	9,356	210,208	12,811	358,733	80.00	89,899	68,523	31,701	—99,917
2 mos.	293	737,225	77,656	844,772	80,781	168,011	18,097	422,174	27,329	716,453	84.80	128,319	85,633	15,076	—103,772
Atchison, Topeka & Santa Fe.....Feb.	8,997	9,200,171	3,737,241	14,386,032	1,656,344	3,765,308	306,690	4,804,280	329,200	10,829,426	75.30	3,556,606	2,497,997	2,703,421	2,902,701
2 mos.	8,997	18,374,393	7,699,586	28,912,397	3,325,948	8,112,713	616,081	10,059,351	692,901	22,515,557	77.90	6,396,840	4,191,740	4,528,886	6,867,264
Gulf, Colorado & Santa Fe.....Feb.	1,908	1,685,671	291,330	2,111,186	466,352	546,001	44,800	707,947	59,951	1,824,753	86.40	286,433	201,539	107,197	—23,257
2 mos.	1,908	3,304,525	640,314	4,194,783	856,884	1,109,887	92,787	1,393,164	124,099	3,576,036	85.20	618,747	448,038	262,749	272,628
Panhandle & Santa Fe.....Feb.	858	612,028	111,463	767,037	122,460	202,420	7,429	218,651	18,047	568,617	74.10	198,420	173,057	141,235	34,205
2 mos.	858	1,238,063	250,659	1,573,701	180,046	415,674	15,339	436,507	37,597	1,084,670	68.90	489,031	437,321	370,701	102,676
Atlanta & West Point.....Feb.	93	140,295	77,031	250,580	30,941	43,525	8,766	82,824	11,049	182,004	72.60	68,576	58,980	46,161	36,270
2 mos.	93	281,227	155,290	498,350	65,268	92,495	15,741	174,536	21,781	379,764	76.20	118,586	93,890	70,353	52,750
Western of Alabama.....Feb.	133	165,422	75,083	267,158	34,987	48,215	9,512	78,266	10,680	185,966	69.60	81,192	70,767	63,839	43,229
2 mos.	133	324,530	149,985	526,103	66,058	107,050	18,933	160,925	21,330	383,073	72.80	143,030	118,740	109,460	79,916
Atlanta, Birmingham & Atlantic...Feb.	639	330,810	37,667	397,271	67,428	80,869	21,896	169,749	15,218	355,215	89.40	42,056	29,234	16,642	—28,027
2 mos.	639	633,392	83,716	772,183	139,397	166,951	44,783	341,526	30,779	723,573	93.70	48,609	22,994	—4,641	—52,130
Atlantic Coast Line.....Feb.	4,868	5,483,680	2,163,781	8,210,779	775,026	1,438,298	123,740	2,601,324	153,026	5,137,756	62.60	3,073,023	2,621,404	2,500,737	1,994,295
2 mos.	4,869	10,263,081	4,200,480	15,577,671	1,570,705	2,818,309	259,297	5,146,980	302,598	10,186,763	65.40	5,390,908	4,586,349	4,351,960	3,914,686
Charleston & Western Carolina...Feb.	342	284,172	30,502	329,489	64,031	45,671	6,911	137,409	6,872	260,894	79.20	68,595	51,034	43,905	46,405
2 mos.	342	529,024	65,507	623,028	122,272	91,534	14,332	272,605	13,468	514,211	82.50	108,817	73,705	57,838	118,288
Baltimore & Ohio.....Feb.	5,303	15,244,932	2,110,465	18,497,990	2,500,322	4,250,758	349,789	7,595,875	504,592	15,332,064	82.90	3,165,926	2,301,918	2,021,100	2,522,158
2 mos.	5,303	30,193,584	4,522,433	36,947,728	5,000,614	8,932,368	699,840	15,276,721	1,054,949	31,211,340	89.60	5,736,388	3,994,758	3,495,561	6,131,652
Baltimore & Ohio Chicago Term...Feb.	80	.....	.....	286,127	31,294	49,645	2,254	186,443	9,540	283,800	99.20	2,327	—38,151	12,996	19,593
2 mos.	80	.....	.....	567,416	62,601	102,400	3,875	375,326	19,791	573,968	101.10	—6,552	—87,508	17,008	68,456
Staten Island Rapid Transit.....Feb.	23	94,239	89,589	199,711	23,395	36,896	1,975	115,936	14,450	192,652	96.40	7,059	—9,559	—23,057	—51,404
2 mos.	23	182,479	181,241	397,724	49,633	66,219	4,367	237,720	30,379	388,318	97.60	9,406	—24,818	—50,162	—110,830
Bangor & Aroostook.....Feb.	616	626,822	64,369	706,808	101,810	139,380	3,384	199,195	17,192	462,832	65.50	243,976	194,140	225,906	66,691
2 mos.	616	1,165,482	137,982	1,344,732	218,396	288,772	7,013	397,844	38,247	953,130	70.90	391,602	298,930	366,097	114,436
Belt Ry. Co. of Chicago.....Feb.	32	.....	.....	566,427	34,647	69,245	2,210	300,224	11,991	418,317	73.90	148,110	105,410	132,805	130,652
2 mos.	32	.....	.....	1,123,868	68,381	148,829	4,728	590,359	24,883	837,180	74.50	286,688	208,409	268,960	304,046
Bessemer & Lake Erie.....Feb.	228	720,322	25,483	765,901	57,707	481,349	16,454	295,750	28,512	869,234	113.50	—103,333	—145,889	—54,173	246,387
2 mos.	228	1,470,475	49,800	1,561,665	130,931	957,954	29,884	612,136	59,058	1,771,227	113.40	—209,562	—294,625	—110,998	781,979
Bingham & Garfield.....Feb.	34	35,681	.....	36,851	3,671	6,556	2,147	11,026	4,503	28,011	76.00	8,840	—1,658	14,639	13,747
2 mos.	34	70,636	.....	73,336	9,719	17,006	3,747	21,176	8,200	60,395	82.40	12,941	—7,537	25,036	31,276
Boston & Maine.....Feb.	2,287	3,822,586	1,783,990	6,301,900	748,410	1,268,380	51,624	2,959,733	222,078	5,270,642	83.60	1,031,258	792,138	555,971	—1,281,805
2 mos.	2,287	7,567,693	3,558,479	12,617,574	1,611,414	2,768,040	107,089	6,061,035	460,020	11,050,390	87.60	1,567,184	1,088,699	647,999	—2,780,895
Brooklyn Eastern District Terminal.Feb.	9	112,592	.....	121,684	12,141	10,356	67	41,854	5,376	69,794	57.40	51,890	45,488	45,488	52,654
2 mos.	9	218,425	.....	234,550	22,766	19,814	669	84,251	10,878	138,378	59.20	96,172	83,368	83,648	112,185
Buffalo & Susquehanna R. R. Corp..Feb.	253	197,199	5,453	206,266	33,971	84,572	1,888	65,527	9,048	195,006	94.50	11,260	2,656	42,164	80,753
2 mos.	253	407,147	11,070	424,909	67,657	171,598	3,865	134,949	18,267	396,336	93.30	28,573	9,469	88,613	159,344
Buffalo, Rochester & Pittsburgh....Feb.	591	1,316,343	136,560	1,510,727	172,787	564,308	23,157	608,927	46,079	1,417,223	93.80	93,504	58,276	101,529	256,790
2 mos.	591	2,562,106	280,551	2,949,406	348,696	1,073,858	48,236	1,207,683	86,511	2,767,408	93.80	181,998	111,632	246,245	558,092
Canadian Pacific Lines in Maine....Feb.	233	261,811	30,923	308,767	26,081	64,236	4,700	139,839	3,456	238,312	77.20	70,455	59,455	43,509	50,373
2 mos.	233	523,554	71,031	630,138	50,072	114,991	9,452	276,142	7,064	457,721	72.60	172,417	150,417	120,004	102,690
Carolina, Clinchfield & Ohio.....Feb.	309	659,491	36,714	712,174	72,450	176,916	26,317	222,677	21,490	519,353	72.90	192,821	142,820	213,589	146,238
2 mos.	309	1,288,305	76,843	1,393,350	145,037	355,278	52,682	422,435	41,536	1,016,372	72.90	376,978	276,950	397,847	347,930
Central of Georgia.....Feb.	1,920	1,571,374	479,057	2,250,892	328,319	383,399	71,522	833,346	90,637	1,715,761	76.20	535,131	422,396	429,597	402,024
2 mos.	1,920	2,977,625	978,025	4,341,057	598,234	782,185	141,883	1,693,094	186,489	3,419,488	78.70	921,569	711,273	726,894	727,440
Central of New Jersey.....Feb.	691	3,225,820	674,647	4,151,766	533,145	1,153,524	36,755	1,799,831	105,292	3,646,985	87.80	504,751	176,804	57,939	236,687
2 mos.	692	6,668,280	1,345,622	8,503,854	1,027,877	2,655,918	73,896	3,702,867	214,674	7,712,726	90.60	791,128	—488	—151,669	325,934
Central Vermont.....Feb.	434	501,000	100,735	657,777	84,617	118,848	11,862	338,383	22,817	578,013	87.90	79,764	60,077	38,741	—86,659
2 mos.	434	986,200	207,235	1,311,045	177,201	227,441	24,217	657,959	51,316	1,141,120	87.00	169,925	132,197	83,944	—246,303
Chesapeake & Ohio.....Feb.	2,552	7,417,207	769,447	8,516,847	1,254,542	2,048,431	91,089	2,841,643	192,961	6,456,988	75.80	2,059,859	1,684,061	1,807,045	1,060,133
2 mos.	2,552	14,226,862	1,624,618	16,554,365	2,280,880	4,182,741	184,718	5,680,937	391,426	12,779,133	77.20	3,775,232	3,024,294	3,289,183	2,434,653
Chicago & Alton.....Feb.	1,050	1,602,001	500,505	2,309,523	211,639	668,851	61,390	943,427	61,802	1,958,604	84.80	350,919	256,753	154,880	79,843
2 mos.	1,050	3,477,874	1,027,537	5,031,961	435,937	1,339,699	121,750	2,040,024	128,925	4,060,369	80.70	971,592	792,675	583,293	564,759

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1924—CONTINUED

Name of road		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net operating income.	Net op. income 1922.
Chicago & Eastern Illinois	Feb.	945	$1,849,202	$381,484	$2,400,183	$256,146	$697,577	$51,806	$982,485	$70,578	$2,073,667	86.40	$326,516	$225,654	$184,206	$226,632
	2 mos.	945	3,819,077	811,369	4,971,815	530,570	1,397,101	98,233	2,052,136	139,194	4,246,224	85.40	725,591	513,651	450,131	660,402
Chicago & North Western	Feb.	8,462	8,508,679	2,300,203	12,005,244	1,168,351	2,440,145	158,630	5,475,630	351,970	9,662,499	80.50	2,342,945	1,581,705	1,298,354	358,723
	2 mos.	8,462	16,088,732	4,915,269	23,521,736	2,322,176	4,916,986	305,485	11,134,231	709,992	19,535,408	83.10	3,986,328	2,463,638	1,905,221	1,115,684
Chicago, Burlington & Quincy	Feb.	9,405	10,069,124	2,045,656	13,232,456	1,054,447	3,126,800	226,855	5,091,906	341,260	9,904,509	74.90	3,327,947	2,437,520	2,156,672	1,598,816
	2 mos.	9,405	19,699,907	4,254,864	26,259,122	2,105,070	6,442,969	475,981	10,610,211	732,259	20,562,368	78.30	5,696,754	4,007,715	3,498,263	4,481,703
Chicago Great Western	Feb.	1,496	1,485,980	329,034	1,960,981	162,523	389,891	64,846	895,296	52,989	1,577,188	80.40	383,793	300,536	201,846	94,864
	2 mos.	1,496	2,807,734	694,271	3,803,016	347,606	802,373	125,594	1,844,384	109,606	3,250,600	85.50	552,416	391,292	213,757	270,335
Chicago, Indianapolis & Louisville	Feb.	654	1,097,371	214,151	1,428,042	135,500	282,179	32,967	530,806	36,076	1,031,983	72.30	396,059	333,049	212,235	101,877
	2 mos.	654	2,081,418	451,759	2,779,095	270,907	605,114	65,148	1,075,366	70,409	2,115,475	76.10	663,620	537,758	296,390	267,865
Chicago, Milwaukee & St. Paul	Feb.	10,986	9,843,621	1,758,233	12,932,916	1,323,121	2,990,280	168,400	5,492,129	318,901	10,345,814	80.00	2,587,102	1,773,188	1,373,022	599,747
	2 mos.	10,988	18,856,303	3,731,074	25,327,749	2,553,971	6,168,941	353,467	11,152,803	659,906	21,003,925	82.90	4,323,824	2,752,416	2,000,535	2,424,166
Chicago, Peoria & St. Louis	Feb.	247	84,238	16,828	111,589	14,334	19,975	1,953	59,418	8,593	104,273	83.40	7,316	3,816	—19,562	—43,703
	2 mos.	247	168,700	29,540	220,318	26,981	39,842	3,890	124,020	17,070	211,803	96 10	8,515	1,488	—42,616	—69,436
Chicago River & Indiana	Feb.	19	.....	.....	628,832	53,396	69,659	1,035	265,857	11,469	401,416	63.80	227,416	176,240	282,454	252,734
	2 mos.	19	.....	.....	1,249,838	102,655	127,382	1,871	520,995	23,358	776,261	62.10	473,577	381,796	590,971	542,759
Chicago, Rock Island & Pacific	Feb.	7,635	7,037,116	1,978,297	9,674,590	864,050	1,855,180	195,046	4,134,152	279,069	7,371,593	76.20	2,302,997	1,782,564	1,407,314	—486,566
	2 mos.	7,635	13,531,411	4,151,458	19,053,526	1,806,571	3,779,742	387,995	8,617,948	607,140	15,225,267	79.90	3,828,259	2,789,691	1,945,168	331,109
Chicago, Rock Island & Gulf	Feb.	461	375,940	77,397	494,176	63,642	61,147	13,098	192,596	16,198	349,421	70.70	144,755	132,266	123,090	—26,667
	2 mos.	461	761,787	165,561	1,009,505	116,302	140,211	26,018	408,953	32,883	728,512	72.20	280,993	255,848	190,119	20,542
Chicago, St. Paul, Minn. & Omaha	Feb.	1,749	1,699,551	479,077	2,324,856	179,916	445,606	35,483	1,093,187	69,298	1,828,735	78.70	496,121	371,429	308,415	50,296
	2 mos.	1,749	3,206,866	1,019,048	4,560,917	391,957	949,208	71,057	2,196,272	142,430	3,762,734	82.50	798,183	547,270	413,006	385,794
Cincinnati, Indianapolis & Western	Feb.	347	321,650	29,377	373,850	29,142	82,009	13,331	158,730	17,710	301,053	80.50	72,797	52,446	31,366	—1,282
	2 mos.	347	620,693	62,055	730,374	56,731	161,950	25,113	313,306	35,761	593,848	81.30	136,526	95,943	61,520	14,185
Colorado & Southern	Feb.	1,099	821,307	126,339	1,022,372	101,090	271,806	15,528	412,422	42,096	849,058	83.40	173,314	110,568	105,422	—7,279
	2 mos.	1,099	1,711,750	272,854	2,136,734	199,226	559,900	25,684	859,686	85,250	1,743,784	81.60	392,950	267,045	249,292	25,073
Ft. Worth & Denver City	Feb.	456	626,473	134,566	806,681	68,434	163,089	13,172	267,508	33,252	547,811	67.90	258,870	215,186	229,267	146,319
	2 mos.	456	1,296,874	309,913	1,688,831	133,080	329,214	22,628	542,432	72,887	1,104,471	65.40	584,360	503,485	546,725	312,426
Wichita Valley	Feb.	271	144,177	21,579	175,133	24,376	8,170	3	45,721	1,847	80,088	45.70	95,045	85,813	65,317	7,998
	2 mos.	271	287,359	50,432	354,876	49,934	18,772	38	101,725	3,759	174,199	49.10	180,677	164,512	122,879	17,660
Columbus & Greenville	Feb.	167	97,241	25,308	130,762	26,519	11,186	3,143	46,783	8,897	96,149	73.50	34,613	33,113	22,646	12,306
	2 mos.	167	181,177	59,059	256,214	63,842	29,618	5,540	94,779	19,166	212,437	82.90	43,777	40,776	20,259	23,448
Delaware & Hudson	Feb.	894	3,301,582	274,722	3,747,617	431,845	997,715	43,846	1,567,156	140,019	3,198,806	85.40	548,811	444,941	494,386	—319,264
	2 mos.	894	6,280,998	577,382	7,217,495	926,286	2,124,996	89,231	3,112,960	284,755	6,569,653	91.00	647,842	441,271	529,253	—720,101
Delaware, Lackawanna & Western	Feb.	992	4,996,626	1,013,039	6,769,333	559,007	1,597,429	108,753	2,950,634	156,140	5,421,318	80.10	1,348,015	857,788	950,315	75,395
	2 mos.	993	10,084,776	2,122,709	13,762,317	1,147,706	3,226,740	236,620	5,989,967	325,794	11,028,500	80.10	2,733,817	1,756,071	1,864,481	339,159
Denver & Rio Grande Western	Feb.	2,598	1,737,177	337,453	2,273,536	226,029	674,412	46,476	824,088	81,783	1,879,025	82.60	394,511	225,516	275,787	70,498
	2 mos.	2,598	3,748,416	705,804	4,825,291	482,941	1,436,519	98,726	1,842,611	172,719	4,083,891	84.60	741,400	404,319	483,377	48,723
Denver & Salt Lake	Feb.	255	192,390	18,319	232,156	34,011	99,462	1,069	77,057	5,782	217,381	93.60	14,775	5,775	13,735	—16,980
	2 mos.	255	334,023	37,662	416,725	70,344	199,981	2,153	158,346	12,369	443,193	106.40	—26,468	—44,468	—31,286	—65,264
Detroit & Mackinac	Feb.	375	88,830	24,830	125,372	21,447	35,005	2,151	62,326	5,717	126,639	101.00	—1,267	—10,922	2,517	—10,893
	2 mos.	375	173,005	58,280	252,959	40,921	73,144	3,987	126,088	10,921	255,020	100.80	—2,061	—21,352	238	—17,064
Detroit & Toledo Shore Line	Feb.	61	353,360	.....	356,368	30,823	33,684	2,806	106,178	5,925	179,416	50.30	176,952	151,952	75,885	40,489
	2 mos.	61	657,862	.....	666,125	60,027	69,880	6,307	220,990	13,229	370,433	55.60	295,692	245,692	70,655	120,590
Detroit, Toledo & Ironton	Feb.	468	941,752	7,933	962,574	70,977	132,648	9,347	297,603	24,721	534,707	55.50	427,867	412,137	296,030	39,615
	2 mos.	468	1,909,769	16,787	1,951,803	164,186	289,086	16,607	592,465	48,991	1,110,519	56.90	841,284	809,833	572,135	108,910
Duluth & Iron Range	Feb.	280	165,855	17,741	206,893	58,617	135,191	1,268	150,859	16,196	362,602	175.30	—155,709	—168,595	—173,597	—167,558
	2 mos.	280	276,952	37,396	355,110	115,050	268,672	2,131	300,880	39,062	726,799	204.70	—371,689	—392,874	—409,620	—361,673
Duluth, Missabe & Northern	Feb.	305	109,152	13,450	137,598	133,420	212,846	3,178	144,634	18,814	513,604	373.30	—376,006	—487,890	—488,482	—401,698
	2 mos.	305	200,062	28,681	256,754	272,881	414,390	6,153	287,752	37,279	1,019,885	397.20	—763,131	—986,732	—985,391	—841,457
Duluth, South Shore & Atlantic	Feb.	591	335,656	87,597	455,190	56,417	77,310	6,468	226,418	11,328	382,990	84.10	72,200	44,198	18,566	—37,440
	2 mos.	591	623,947	207,371	898,400	106,090	163,940	11,178	440,188	21,606	753,529	83.90	144,871	88,790	39,677	—27,247
Duluth, Winnipeg & Pacific	Feb.	178	226,063	21,587	254,818	16,289	48,329	3,278	91,723	13,403	174,681	68.60	80,137	67,394	66,054	26,239
	2 mos.	178	403,220	47,718	465,077	41,099	79,346	5,859	182,775	21,284	332,034	71.40	133,043	109,787	104,940	63,065
Elgin, Joliet & Eastern	Feb.	459	1,967,545	11	2,183,591	149,715	559,396	13,409	756,707	40,934	1,520,034	69.60	663,557	581,597	374,512	378,942
	2 mos.	459	3,741,426	101	4,148,721	295,625	1,125,980	25,606	1,481,702	81,891	3,010,564	72.60	1,138,157	974,214	589,137	949,174
El Paso & Southwestern	Feb.	1,139	741,657	203,365	1,002,696	185,879	224,536	35,217	272,366	41,077	769,295	76.70	233,401	150,898	135,894	129,202
	2 mos.	1,139	1,492,738	438,928	2,033,224	369,236	447,895	79,396	577,501	82,829	1,576,928	77.60	456,296	291,292	247,225	343,069
Erie	Feb.	2,055	7,098,544	990,170	8,719,269	911,880	2,369,015	147,695	3,519,002	271,132	7,259,664	83.30	1,459,605	1,107,316	1,285,629	732,243
	2 mos.	2,055	13,591,238	2,034,585	16,984,940	1,790,274	4,851,042	293,455	7,034,610	546,575	14,598,051	85.90	2,386,889	1,685,602	2,139,275	1,076,604

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1924—CONTINUED

Name of road.		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net operating income.	Net op. income 1923.
Chicago & Erie	Feb.	269	$1,177,796	$49,882	$1,307,611	$92,350	$161,579	$21,562	$458,267	$35,449	$769,373	58.80	$538,238	$485,518	$193,401	—$244,723
	2 mos.	269	2,115,898	108,345	2,425,802	192,656	329,680	44,177	899,711	71,644	1,538,086	63.40	887,716	782,250	169,098	—444,177
New Jersey & New York	Feb.	45	21,309	94,386	120,028	15,197	17,535	1,263	66,037	3,391	103,423	86.20	16,605	12,902	—11,487	—19,711
	2 mos.	45	43,372	192,312	245,445	30,596	38,364	2,321	138,514	6,825	216,620	88.30	28,825	21,455	—31,358	—50,844
N. Y., Susquehanna & Western	Feb.	135	279,327	56,553	379,054	46,506	80,144	3,809	218,383	10,693	359,529	94.80	19,525	—15,196	—32,083	—32,658
	2 mos.	135	550,234	114,664	755,869	100,591	160,373	7,619	450,861	21,170	740,608	98.00	15,261	—48,627	—74,267	—75,516
Evansville, Ind. & Terre Haute	Feb.	137	153,886	8,843	170,201	20,391	12,870	2,038	65,558	3,422	102,985	60.50	67,216	60,672	41,942	—4,900
	2 mos.	137	324,312	15,171	353,403	49,617	27,805	3,627	143,097	6,402	229,116	64.80	124,287	113,493	58,504	—665
Florida East Coast	Feb.	763	1,043,872	936,889	2,238,839	230,469	243,648	21,802	626,248	31,037	1,176,933	52.60	1,061,906	964,287	869,573	671,410
	2 mos.	763	2,000,189	1,575,052	4,042,983	458,270	518,377	49,952	1,254,939	66,566	2,391,661	59.20	1,651,322	1,455,868	1,277,302	1,137,934
Ft. Smith & Western	Feb.	249	90,198	19,334	118,293	27,637	24,967	5,359	51,342	7,615	114,047	96.40	4,246	—1,798	—13,199	1,990
	2 mos.	249	193,825	41,693	254,885	62,533	57,214	10,372	105,680	15,888	249,609	97.90	5,276	—7,269	—30,209	12,975
Galveston Wharf Co.	Feb.	13	.....	.....	96,119	37,897	5,689	927	26,381	2,899	77,847	81.00	18,272	1,297	1,141	13,182
	2 mos.	13	.....	.....	224,218	92,336	9,519	1,742	58,096	6,016	166,684	74.30	57,534	23,559	23,725	39,784
Georgia R. R.	Feb.	328	374,356	84,608	492,655	52,770	81,962	21,546	209,798	21,641	379,152	77.00	113,503	106,753	101,074	33,973
	2 mos.	328	713,839	187,142	967,312	96,201	181,027	42,798	426,953	43,442	781,407	80.80	185,905	172,312	171,953	80,019
Georgia & Florida	Feb.	406	120,149	17,093	145,644	17,852	19,962	8,166	55,429	7,884	105,508	75.20	36,136	29,728	15,838	25,228
	2 mos.	406	233,562	36,180	287,177	35,399	41,471	15,917	113,313	15,586	222,121	77.30	65,056	52,131	26,529	40,039
Grand Trunk Western	Feb.	347	1,408,220	165,543	1,671,042	118,907	449,310	40,094	676,500	48,301	1,340,097	80.20	330,945	261,257	88,996	—64,632
	2 mos.	347	2,542,185	359,917	3,086,627	215,438	853,231	80,484	1,317,986	99,112	2,580,737	83.60	505,890	370,396	36,774	—77,894
Atlantic & St. Lawrence	Feb.	166	171,980	30,619	217,801	30,393	48,032	6,592	155,109	9,034	251,127	115.30	—33,326	—48,476	—126,836	—226,533
	2 mos.	166	361,694	64,743	457,739	61,689	100,651	12,719	321,767	24,791	525,502	114.80	—67,763	—98,063	—248,611	—393,193
Chic., Det. & Canada Gr. Tr. Jct.	Feb	59	193,886	10,001	241,467	13,376	13,562	5,679	90,220	3,259	126,096	52.20	115,371	107,114	80,265	96,728
	2 mos.	59	413,036	18,881	500,420	24,652	24,010	10,991	179,691	6,653	245,996	49.20	254,424	237,915	188,680	172,468
Det., Grand Haven & Milwaukee	Feb.	189	425,531	40,383	509,313	40,433	54,998	12,932	259,995	13,478	382,170	75.00	127,143	123,615	37,412	—20,541
	2 mos.	189	864,096	79,385	1,031,756	84,698	101,206	25,485	526,263	29,225	767,593	74.40	264,163	255,116	91,591	—49,295
Great Northern	Feb.	8,251	5,168,057	930,691	6,943,801	746,416	1,482,636	152,448	3,059,763	234,684	5,713,951	82.30	1,229,850	568,210	668,330	—637,468
	2 mos.	8,251	9,978,010	2,034,041	13,593,402	1,449,233	2,703,493	303,223	6,283,802	456,116	11,268,518	82.90	2,324,884	1,002,057	1,230,368	279,740
Green Bay & Western	Feb.	234	97,122	18,695	124,237	16,470	22,274	2,851	47,040	2,608	91,243	73.40	32,994	25,489	19,388	4,419
	2 mos.	234	196,498	37,520	249,280	32,887	45,959	6,315	97,817	5,148	188,110	75.40	61,170	46,165	33,965	18,012
Gulf Coast Lines	Feb.	922	822,499	181,750	1,064,230	147,609	147,031	28,103	299,410	35,834	656,482	61.70	407,748	353,668	288,690	209,817
	2 mos.	922	1,580,494	374,158	2,070,184	329,876	271,907	54,428	575,009	70,936	1,300,641	62.80	769,543	661,052	549,949	456,136
Gulf & Ship Island	Feb.	307	241,576	35,019	305,685	45,230	34,736	7,970	83,770	12,803	194,710	63.70	110,975	82,681	71,398	39,593
	2 mos.	307	460,039	76,013	594,847	90,092	73,114	15,635	168,964	27,469	396,594	66.70	198,253	142,756	120,508	84,026
Gulf, Mobile & Northern	Feb.	465	423,885	38,510	481,192	66,263	69,842	21,914	164,309	18,858	340,414	70.70	140,778	111,540	92,468	67,715
	2 mos.	465	848,173	83,070	969,174	146,466	147,366	43,458	333,808	36,743	705,916	72.80	263,258	208,758	176,542	165,058
Hocking Valley	Feb.	348	1,109,331	79,040	1,254,825	111,735	356,417	13,705	414,048	33,107	928,887	74.00	325,938	232,995	376,542	54,799
	2 mos.	348	2,184,969	163,949	2,487,603	228,884	720,935	27,245	839,645	68,406	1,884,914	75.80	602,689	416,801	622,340	232,961
Illinois Central	Feb.	4,345	10,059,430	2,212,043	13,083,412	1,444,996	2,560,618	207,293	4,987,247	314,207	9,558,588	73.10	3,524,824	2,557,857	2,671,327	2,330,917
	2 mos.	4,845	20,189,026	4,609,849	26,421,755	2,955,406	5,382,602	425,708	10,419,396	654,037	19,915,342	75.40	6,506,413	4,650,296	4,892,385	4,868,268
Yazoo & Mississippi Valley	Feb.	1,380	1,348,320	295,645	1,731,923	260,583	248,808	21,795	660,028	43,849	1,234,216	71.30	497,707	382,223	372,279	—24,856
	2 mos.	1,380	2,682,996	653,755	3,504,807	509,417	537,271	46,364	1,388,456	91,418	2,564,322	73.20	940,485	709,573	690,584	317,326
Illinois Central Combined Report	Feb.	6,225	11,407,750	2,507,688	14,815,335	1,705,579	2,809,426	229,088	5,647,275	358,056	10,792,804	72.80	4,022,531	2,940,080	3,043,606	2,306,061
	2 mos.	6,225	22,872,022	5,263,604	29,926,562	3,464,823	5,919,873	472,072	11,807,852	745,455	22,479,664	75.10	7,446,898	5,359,869	5,582,969	5,185,594
International—Great Northern	Feb.	1,159	995,822	189,717	1,309,300	255,212	248,673	34,508	537,743	45,452	1,110,365	84.81	198,935	164,115	94,575	89,705
	2 mos.	1,159	1,979,117	405,702	2,626,985	501,862	498,369	69,199	1,087,117	97,408	2,233,761	85.03	393,224	323,616	190,592	190,176
Kansas City, Mexico & Orient	Feb.	272	135,632	5,914	146,893	35,376	38,843	4,062	64,021	4,047	146,349	99.60	544	—3,313	—17,763	—25,939
	2 mos.	272	271,014	13,295	294,215	67,801	75,734	9,855	137,671	11,213	302,274	102.70	—8,059	—17,972	—47,805	—56,755
Kans. City, Mex. & Orient of Tex.	Feb.	465	137,046	10,848	154,203	31,516	34,643	4,530	62,977	5,660	139,326	90.40	14,877	10,877	—1,978	—44,310
	8 mos.	465	292,276	22,791	328,535	62,984	65,695	10,064	135,996	10,899	285,619	87.00	42,916	34,880	7,752	—85,712
Kansas City Southern	Feb.	767	1,231,809	147,860	1,512,374	213,189	269,532	39,718	508,194	71,749	1,101,561	72.80	410,813	317,350	288,397	239,946
	2 mos.	767	2,449,068	321,351	3,014,986	414,681	539,377	80,461	1,032,265	142,380	2,204,868	73.10	810,118	623,115	574,603	588,926
Texarkana & Ft. Smith	Feb.	81	191,329	14,240	226,467	19,323	13,745	4,774	59,759	9,119	110,907	49.00	115,560	100,157	84,101	41,575
	2 mos.	81	382,434	29,756	451,711	27,951	42,630	9,105	119,197	18,627	221,697	49.10	230,014	198,970	152,062	117,357
Kansas, Oklahoma & Gulf	Feb.	314	177,762	11,507	195,491	38,782	29,802	9,097	69,285	12,422	159,401	81.50	36,090	25,661	17,826	21,778
	2 mos.	314	352,245	23,166	387,973	85,352	56,691	17,546	147,588	24,975	332,256	85.60	55,717	34,811	12,777	47,235
Lake Superior & Ishpeming	Feb.	163	71,016	6,395	80,423	29,434	25,773	604	37,781	5,985	99,537	123 80	—19,114	—29,361	—32,067	—39,328
	2 mos.	163	133,905	12,133	151,988	58,688	59,718	1,111	75,187	11,301	206.005	135.50	—54,017	—74,513	—79,495	—79,961
Lake Terminal	Feb.	13	.....	.....	79,571	9,811	16,803	.....	52,197	1,741	80,552	101.20	—981	—7,385	—9,638	—8,801
	2 mos.	13	.....	.....	151,009	26,325	33,287	.....	107,234	3,696	170,542	112.90	—19,533	—32,342	—38,448	—7,604

REVENUES AND EXPENSES OF RAILWAYS

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1924—CONTINUED

Name of road.		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net operating income.	Net op. income 1922.
Lehigh and Hudson River	Feb.	96	$248,462	$2,888	$261,970	$25,113	$43,016	$1,341	$97,165	$9,969	$176,604	67.40	$85,366	$70,940	$45,337	$50,732
	2 mos.	96	488,408	5,733	515,426	60,196	94,541	2,731	196,812	25,132	379,412	73.60	136,014	107,163	58,078	90,567
Lehigh & New England	Feb.	219	372,238	1,703	380,385	45,608	110,199	5,620	139,274	17,582	318,283	83.70	62,102	50,452	56,458	36,337
	2 mos.	219	784,325	3,387	806,749	109,382	224,417	11,573	285,329	33,780	664,481	82.40	142,268	115,836	136,228	106,213
Lehigh Valley	Feb.	1,374	4,941,281	502,759	5,839,731	516,832	1,491,891	103,362	2,584,635	136,223	4,852,446	83.10	987,285	757,047	692,421	—953,420
	2 mos.	1,374	9,975,030	1,057,111	11,810,851	1,275,079	3,154,559	205,095	5,266,420	274,586	10,218,758	86.50	1,592,093	1,127,037	957,931	—1,882,453
Los Angeles & Salt Lake	Feb.	1,209	1,398,713	401,481	1,959,916	333,025	400,072	54,952	633,861	60,127	1,533,606	78.20	426,310	297,177	232,358	—1,704
	2 mos.	1,209	2,752,480	901,783	3,979,608	715,394	855,078	113,769	1,359,361	118,387	3,267,411	82.10	712,197	454,010	322,960	66,260
Louisiana & Arkansas	Feb.	302	254,231	33,134	296,746	44,058	66,308	9,304	86,513	12,424	218,482	73.60	78,264	55,962	46,061	96,306
	2 mos.	302	525,391	71,983	614,306	100,173	131,039	17,485	175,043	21,930	445,253	72.50	169,053	120,429	101,918	195,680
Louisiana Ry. & Nav. Co.	Feb.	343	249,464	23,119	287,814	71,613	39,166	10,116	132,183	11,268	264,128	91.80	23,686	5,662	—13,380	11,598
	2 mos.	343	500,705	49,792	585,667	148,594	86,743	20,412	265,944	22,388	543,838	92.90	41,829	5,787	—36,355	35,916
Louisiana Ry. & Nav. Co. of Tex.	Feb.	206	83,157	11,879	101,954	23,403	13,963	3,523	54,810	5,168	100,867	98.90	1,087	—2,913	—27,087	Not avail.
	2 mos.	206	172,716	27,191	215,775	44,662	33,010	6,950	111,144	9,834	205,600	95.30	10,175	2,175	—39,896	Not avail.
Louisville & Nashville	Feb.	5,042	8,930,455	1,851,291	11,415,611	1,473,125	2,784,213	230,521	4,422,780	261,961	9,207,859	80.70	2,207,752	1,763,565	1,896,503	1,139,976
	2 mos.	5,042	16,791,884	3,979,676	22,128,140	3,021,672	5,680,578	499,884	8,973,118	520,977	18,775,673	84.80	3,352,467	2,507,485	2,717,245	2,866,719
Louisville, Henderson & St. Louis	Feb.	199	245,844	54,838	319,746	47,463	54,825	6,811	102,662	9,401	221,162	69.20	98,584	82,013	66,019	25,941
	2 mos.	199	461,439	114,474	611,498	88,277	101,628	13,230	202,679	18,907	424,721	69.50	186,777	161,284	133,794	96,135
Maine Central	Feb.	1,207	1,360,414	324,155	1,801,721	249,856	353,851	11,700	782,626	47,135	1,445,168	80.20	356,553	254,161	231,634	—233,838
	2 mos.	1,207	2,501,502	668,109	3,409,840	491,835	715,219	25,082	1,560,536	98,454	2,891,049	84.80	518,791	314,148	282,713	—418,028
Midland Valley	Feb.	365	267,917	59,593	339,684	57,403	43,561	5,910	107,458	15,932	227,426	67.00	112,258	95,834	83,529	99,558
	2 mos.	365	581,732	119,689	723,998	107,282	92,597	11,496	226,063	34,460	467,038	64.50	256,960	224,264	206,522	202,905
Minneapolis & St. Louis	Feb.	1,649	1,121,764	140,678	1,326,563	115,740	255,457	26,863	560,934	44,208	1,002,952	75.60	323,611	259,289	212,773	94,172
	2 mos.	1,649	2,109,992	290,991	2,528,782	253,803	530,653	52,351	1,212,906	86,899	2,136,513	84.50	392,269	257,886	128,604	278,395
Minneapolis, St. Paul & S. S. Marie	Feb.	4,402	2,508,842	499,753	3,301,525	469,414	683,536	58,475	1,549,266	110,990	2,883,477	87.30	418,048	194,779	164,178	135,686
	2 mos.	4,402	4,803,579	1,120,696	6,469,627	923,621	1,293,155	119,910	3,189,839	230,596	5,780,145	89.30	689,482	225,124	171,837	761,398
Mississippi Central	Feb.	257	130,973	15,474	152,454	27,915	21,305	6,619	47,405	8,013	111,257	73.00	41,197	34,679	41,824	38,752
	2 mos.	257	263,700	33,405	307,742	55,698	47,584	12,314	94,236	16,437	226,255	73.50	81,487	68,469	79,367	90,796
Missouri & North Arkansas	Feb.	364	89,129	18,524	116,615	23,514	25,702	4,266	50,168	7,405	111,055	95.20	5,560	1,835	—5,090	—7,961
	2 mos.	364	183,100	39,304	239,179	47,735	52,135	9,158	110,391	14,715	234,134	97.90	5,045	—1,846	—14,797	—13,638
Missouri-Kansas-Texas	Feb.	1,813	1,910,341	441,440	2,587,525	235,272	611,057	47,346	748,501	92,177	174,511	67.54	840,014	654,110	711,541	322,952
	2 mos.	1,813	3,830,564	930,457	5,199,276	540,782	1,317,959	98,986	1,531,653	192,204	3,706,844	71.30	1,492,432	1,140,763	1,269,431	869,701
Missouri-Kansas-Texas of Texas	Feb.	1,389	1,018,856	377,563	1,569,840	204,176	248,827	37,034	622,140	62,126	1,186,589	75.60	383,251	334,452	176,379	—102,864
	2 mos.	1,389	2,117,021	823,350	3,256,728	454,362	459,345	78,102	1,349,902	126,784	2,481,949	76.20	774,779	670,892	306,639	—280,817
Missouri Pacific	Feb.	7,364	7,256,643	1,385,402	9,376,227	1,249,986	2,032,088	172,993	3,845,800	287,106	7,636,207	81.40	1,740,020	1,363,210	1,024,515	—1,756
	2 mos.	7,364	14,330,769	2,891,442	18,915,835	2,405,217	4,180,912	364,207	7,935,488	601,297	15,602,943	82.50	3,312,892	2,558,522	1,955,533	597,788
Mobile & Ohio	Feb.	1,165	1,498,416	150,969	1,745,652	246,714	287,411	58,840	602,121	44,982	1,240,043	71.00	505,609	424,512	348,514	247,198
	2 mos.	1,165	2,852,674	324,819	3,364,243	467,951	602,908	104,200	1,203,465	93,248	2,471,842	73.40	892,401	732,476	588,748	576,456
Monongahela	Feb.	106	449,719	30,629	484,173	55,000	85,793	950	147,546	9,216	302,972	62.90	181,201	170,610	83,835	11,279
	2 mos.	106	897,013	59,660	964,445	110,000	171,586	2,101	299,247	18,450	605,376	62.80	359,069	337,936	167,550	67,296
Monongahela Connecting	Feb.	7	.....	.....	197,410	24,959	43,419	395	111,695	4,414	184,882	93.70	12,528	7,032	—4,742	7,301
	2 mos.	7	.....	.....	390,354	47,216	84,622	770	211,192	9,272	353,072	90.50	37,282	26,739	5,235	—2,318
Montour	Feb.	57	122,840	1,150	125,508	19,884	45,408	961	39,608	7,109	112,970	90.00	12,538	5,965	37,610	46,459
	2 mos.	57	253,384	2,217	258,725	44,580	88,833	1,975	82,127	14,487	232,002	89.70	26,723	13,923	74,751	107,260
Nashville, Chattanooga & St. Louis	Feb.	1,258	1,436,381	410,712	1,997,142	209,094	528,096	82,300	754,151	62,579	1,639,805	82.10	357,337	296,226	287,865	277,898
	2 mos.	1,258	2,760,528	846,521	3,889,752	485,071	1,029,075	165,701	1,556,652	135,381	3,381,488	86.90	508,264	387,044	396,036	508,913
Nevada Northern	Feb.	165	75,155	8,297	88,411	13,343	9,729	969	17,626	3,773	45,440	51.40	42,971	36,050	35,637	19,868
	2 mos.	165	139,874	18,258	167,814	25,832	16,935	1,860	34,660	8,292	87,579	52.20	80,235	66,391	65,418	36,589
Newburgh & South Shore	Feb.	7	.....	.....	171,602	10,197	59,134	.....	74,445	3,968	147,995	86.20	23,607	10,427	15,456	10,409
	2 mos.	7	.....	.....	325,143	25,983	112,552	.....	149,096	7,746	296,427	91.20	28,716	2,269	18,752	—9,744
New Orleans, Great Northern	Feb.	274	211,392	26,296	247,291	31,757	44,925	6,057	76,513	10,504	170,255	68.80	77,036	60,162	48,266	52,243
	2 mos.	274	407,808	54,293	479,721	58,815	89,184	11,461	153,849	22,299	336,609	70.20	143,112	109,515	91,004	117,296
New York Central	Feb.	6,889	19,678,369	6,845,250	29,920,312	3,153,490	6,627,662	350,974	12,072,349	910,351	23,478,925	78.50	6,441,387	4,514,954	4,267,823	2,999,505
	2 mos.	6,889	37,871,661	14,706,672	59,655,908	6,330,922	13,348,154	732,881	24,038,893	1,801,975	47,013,578	78.80	12,642,330	8,895,635	8,413,381	7,734,645
Cincinnati Northern	Feb.	244	446,700	11,101	464,375	39,854	62,297	5,653	163,106	10,383	281,277	60.60	183,098	155,964	110,782	58,597
	2 mos.	244	784,458	23,584	820,433	91,861	138,573	10,544	288,536	17,776	547,357	66.70	273,076	228,726	149,633	138,727
Cleve., Cincinnati, Chic. & St. L.	Feb.	2,407	5,660,720	1,210,929	7,402,398	665,555	1,638,308	115,638	2,980,353	207,757	5,631,671	76.10	1,770,727	1,364,165	1,131,766	999,745
	2 mos.	2,407	10,742,812	2,627,761	14,522,547	1,401,081	3,389,599	220,589	6,013,825	413,555	11,517,033	79.30	3,005,514	2,269,420	1,798,858	2,631,997
Indiana Harbor Belt	Feb.	119	.....	.....	934,907	67,015	111,738	5,480	465,966	26,886	676,334	72.30	258,573	231,481	115,208	27,464
	2 mos.	119	.....	.....	1,765,032	152,999	212,067	9,804	936,176	50,548	1,360,142	77.10	404,890	356,377	121,853	139,856
Michigan Central	Feb.	1,862	5,416,147	1,429,123	7,560,150	778,902	1,386,684	107,078	2,790,349	185,470	5,313,099	70.30	2,247,051	1,792,973	1,685,696	1,023,384
	2 mos.	1,862	10,076,024	3,182,135	14,652,819	1,490,884	2,910,834	194,914	5,536,755	339,638	10,612,159	72.40	4,040,660	3,196,843	3,046,307	3,043,411
Pittsburgh & Lake Erie	Feb.	234	2,695,638	239,596	3,039,999	309,252	966,831	24,365	979,935	81,245	2,362,166	77.70	677,833	514,059	868,890	1,163,401
	2 mos.	234	5,343,446	498,339	6,048,560	645,378	1,936,217	47,048	2,007,775	152,421	4,790,515	79.20	1,258,045	916,839	1,630,936	2,446,159
New York, Chicago & St. Louis	Feb.	1,695	4,311,668	147,191	4,620,541	528,309	855,588	110,480	1,778,875	156,796	3,434,163	74.30	1,186,378	948,413	779,835	386,045
	2 mos.	1,695	8,389,112	298,975	8,990,445	1,085,428	1,736,964	231,222	3,659,631	319,391	7,037,594	78.30	1,952,851	1,466,133	1,178,323	1,137,990
New York, New Haven & Hartford	Feb.	2,000	4,821,354	3,792,189	9,690,100	913,143	2,283,780	59,416	4,014,592	273,390	7,690,783	79.40	1,999,317	1,582,304	1,246,701	—329,693
	2 mos.	2,000	9,779,325	7,674,035	19,711,274	2,042,266	4,668,120	120,633	8,130,534	576,986	15,859,240	80.50	3,852,034	3,019,346	2,336,808	—1,110,280

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1924—CONTINUED

Name of road.		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net operating income.	Net op. income 1923.
Central New England	Feb.	295	$625,219	$12,592	$658,847	$96,471	$118,640	$4,727	$233,229	$10,814	$463,881	70.40	$194,966	$169,268	$128,280	—$58,232
	2 mos.	295	1,248,698	26,579	1,317,990	191,595	237,343	9,570	469,645	21,736	929,989	70.60	388,001	336,495	248,563	—204,054
New York Connecting	Feb.	20	201,011	.....	255,456	3,805	13,702	.....	49,257	1,017	67,781	26.50	187,675	152,975	118,719	306,157
	2 mos.	20	376,093	.....	483,779	12,738	29,835	.....	91,136	2,293	136,002	28.10	347,777	273,077	202,848	258,555
New York, Ontario & Western	Feb.	569	676,228	100,069	915,688	106,260	199,734	15,221	489,587	35,077	847,521	92.60	68,167	20,051	2,980	—208,197
	2 mos.	569	1,318,090	200,093	1,805,600	231,669	442,147	31,480	973,995	77,490	1,759,398	97.40	46,202	—49,981	—98,753	—416,813
Norfolk & Western	Feb.	2,240	6,642,187	669,989	7,621,696	1,053,256	2,225,112	82,707	2,703,382	159,451	6,236,416	81.80	1,385,280	810,103	1,007,506	1,076,938
	2 mos.	2,240	13,088,075	1,433,035	15,132,238	2,132,338	4,258,640	167,993	5,442,035	322,704	12,353,805	81.60	2,778,433	1,628,224	1,953,569	1,669,773
Norfolk Southern	Feb.	931	629,043	89,235	765,726	103,360	98,171	24,652	311,010	29,234	566,949	74.00	198,777	155,942	113,208	69,431
	2 mos.	931	1,206,855	201,866	1,500,398	214,108	213,348	50,646	622,357	58,067	1,159,582	77.30	340,816	254,645	186,584	108,955
Northern Pacific	Feb.	6,669	5,605,306	966,640	7,264,439	743,601	1,584,180	148,626	2,814,692	219,386	5,508,789	75.80	1,755,650	1,067,407	1,466,771	—31,896
	2 mos.	6,669	10,434,622	2,091,756	13,870,587	1,421,557	3,152,947	288,087	5,819,347	454,378	11,171,611	80.50	2,698,976	1,328,558	1,976,191	989,376
Northwestern Pacific	Feb.	496	274,288	166,677	493,650	103,872	98,449	4,113	211,670	17,248	435,129	88.10	58,521	13,002	3,304	2,164
	2 mos.	496	541,191	323,600	968,287	237,528	202,003	8,725	433,739	35,531	917,208	94.70	51,079	—40,535	—58,117	—20,278
Pennsylvania	Feb.	10,484	37,059,749	11,313,832	52,778,147	4,836,084	13,688,150	637,167	22,246,100	1,438,244	43,586,304	82.60	9,191,843	7,766,096	6,196,325	3,263,976
	2 mos.	10,484	71,032,956	23,720,772	103,445,540	9,669,442	26,627,949	1,278,932	43,811,658	2,866,743	85,795,339	82.90	17,650,201	14,313,896	11,311,071	8,222,246
Baltimore, Chesapeake & Atlantic	Feb.	87	63,206	17,667	84,370	10,422	21,162	1,299	68,359	3,374	104,616	124.00	—20,246	—20,246	—20,244	—39,957
	2 mos.	87	123,587	40,128	169,811	20,214	37,538	2,893	140,576	6,904	208,125	122.60	—38,314	—38,314	—40,696	—54,695
Long Island	Feb.	397	761,277	1,329,727	2,283,300	277,187	441,298	19,321	1,200,265	65,213	2,015,353	88.30	267,947	244,007	207,721	81,648
	2 mos.	397	1,468,155	2,722,215	4,582,615	588,543	930,008	37,641	2,413,696	130,764	4,127,686	90.10	454,929	380,596	300,492	107,548
Maryland, Delaware & Virginia	Feb.	Will not file—foreclosure—succeeded by two other companies														
	2 mos.	Will not file—foreclosure—succeeded by two other companies														
West Jersey & Seashore	Feb.	359	317,310	421,260	825,915	128,424	184,813	10,599	461,914	22,526	820,921	99.40	4,994	4,956	—19,712	—39,459
	2 mos.	359	614,188	830,946	1,599,652	254,923	354,429	21,850	933,157	44,985	1,636,463	102.30	—36,811	—37,053	—84,410	—28,246
Peoria & Pekin Union	Feb.	19	26,778	2,620	172,579	9,344	15,384	724	78,544	7,729	111,725	64.70	60,854	48,354	68,367	44,972
	2 mos.	19	50,140	5,397	333,454	18,715	30,516	1,283	160,273	15,744	226,531	67.90	106,923	81,923	123,389	127,627
Pere Marquette	Feb.	2,292	2,823,358	399,802	3,532,952	293,260	724,346	47,624	1,490,393	103,515	2,652,970	75.10	879,982	727,157	621,317	169,820
	2 mos.	2,292	5,173,234	837,319	6,629,731	616,604	1,477,363	109,966	2,867,929	208,459	5,276,660	79.60	1,353,071	1,050,702	848,092	715,094
* Philadelphia & Reading	Feb.	1,150	6,602,252	814,031	7,789,064	839,871	1,947,639	72,247	2,969,085	94,378	5,942,910	76.30	1,846,154	1,443,665	1,601,695	2,131,298
	2 mos.	1,150	13,024,261	1,688,356	15,421,683	1,657,085	4,020,647	143,671	6,042,073	343,095	12,244,050	79.40	3,177,633	2,405,411	2,712,521	4,742,896
Atlantic City	Feb.	170	99,653	112,352	227,607	100,751	34,310	4,555	173,019	4,006	316,822	139.20	—89,215	—109,170	—148,500	—83,174
	2 mos.	170	192,779	231,280	454,195	203,188	66,742	10,106	351,839	8,060	640,125	140.90	—185,930	—225,845	—288,720	—197,259
Perkiomen	Feb.	41	82,646	5,457	92,059	7,139	4,661	112	52,185	815	64,948	70.60	27,111	27,175	22,201	28,087
	2 mos.	41	176,249	10,590	194,637	15,097	9,376	219	95,087	1,651	121,497	62.40	73,140	68,418	60,424	72,887
Port Reading	Feb.	21	121,844	.....	157,047	30,454	3,339	229	85,182	1,207	120,411	76.70	36,636	33,852	4,756	19,394
	2 mos.	21	258,527	.....	334,908	52,619	11,259	458	171,276	5,622	241,234	72.00	93,674	73,459	—3,852	109,520
Pittsburgh & Shawmut	Feb.	102	83,946	5,960	91,679	21,125	38,933	1,620	34,232	6,761	102,671	111.90	—10,992	—11,703	9,258	40,288
	2 mos.	102	172,898	11,887	188,171	38,041	79,679	2,720	68,764	14,224	203,428	108.10	—15,257	—16,107	21,248	86,006
Pittsburgh & West Virginia	Feb.	92	286,730	8,729	329,644	27,357	87,297	4,019	73,819	14,079	234,820	71.26	94,824	55,563	128,649	102,460
	2 mos.	92	551,231	16,798	633,195	50,839	198,823	8,330	146,440	28,208	471,160	74.40	162,035	84,964	235,824	194,427
Pittsburgh, Shawmut & Northern	Feb.	210	101,713	6,563	110,950	19,059	34,446	1,507	51,813	7,477	114,302	103.00	—3,352	—6,017	—8,998	24,782
	2 mos.	210	183,817	13,789	203,246	39,554	72,056	2,916	105,170	13,745	233,441	114.90	—30,195	—35,648	—40,951	48,479
Quincy, Omaha & Kansas City	Feb.	250	53,805	24,710	87,374	32,914	36,860	924	46,959	2,315	119,968	137.30	—32,594	—36,680	—41,021	—36,310
	2 mos.	250	120,231	46,525	183,537	52,880	49,470	1,886	99,498	5,201	208,815	113.80	—25,278	—33,415	—43,367	—38,926
Richm'd, Fredericksburg & Potomac	Feb.	117	470,963	359,469	983,214	86,719	149,456	9,657	329,811	31,968	633,560	64.40	349,654	291,732	231,317	138,140
	2 mos.	117	888,879	763,593	1,976,758	179,119	302,713	20,096	678,483	66,225	1,293,794	65.50	682,964	568,602	461,733	345,425
Rutland	Feb.	413	290,048	114,961	500,172	86,889	98,118	8,871	238,387	12,871	445,978	89.20	54,194	30,856	40,564	33,856
	2 mos.	413	563,074	238,394	1,002,834	172,595	209,248	17,457	472,731	26,584	901,194	89.90	101,640	55,346	74,675	64,391
St. Louis-San Francisco	Feb.	4,747	4,503,227	1,447,647	6,366,494	726,203	1,246,066	91,950	2,344,478	199,198	4,594,657	72.20	1,771,837	1,427,969	1,459,677	1,256,710
	2 mos.	4,747	9,217,716	3,023,366	13,158,395	1,468,552	2,555,505	183,303	4,917,230	404,242	9,484,601	72.10	3,673,794	2,975,237	3,015,241	2,826,144
Ft. Worth & Rio Grande	Feb.	235	70,214	20,728	103,362	16,335	19,717	4,246	53,059	5,777	99,119	95.90	4,243	408	—7,400	—18,592
	2 mos.	235	173,030	47,417	242,755	34,250	41,417	8,489	111,501	12,019	207,626	85.55	35,129	27,440	11,356	—27,972
St. Louis, San Francisco & Texas	Feb.	134	115,554	12,429	134,684	17,624	21,510	5,040	50,522	6,180	100,910	74.85	33,874	31,780	7,653	—30,103
	2 mos.	134	242,063	29,601	283,384	37,185	44,282	10,008	104,072	12,362	207,756	73.31	75,628	71,445	24,131	—28,192
St. Louis-Southwestern	Feb.	969	1,299,622	147,637	1,526,866	169,390	330,329	48,802	399,407	55,374	1,015,512	66.50	511,354	454,870	339,217	445,169
	2 mos.	969	2,600,660	317,768	3,077,663	336,451	630,772	95,406	835,265	119,677	2,043,166	66.40	1,034,497	902,462	746,715	1,006,968
St. Louis, Southwestern of Texas	Feb.	807	494,113	86,499	637,888	124,306	159,037	21,688	256,376	31,348	598,527	93.80	39,361	13,834	86,441	—201,026
	2 mos.	807	1,000,651	190,532	1,300,693	252,566	378,968	43,513	531,227	69,596	1,285,430	98.80	15,263	—35,887	45,331	—392,909
San Antonio & Aransas Pass	Feb.	739	389,632	64,406	490,727	85,220	107,672	11,697	195,276	21,372	420,853	85.80	69,874	53,436	50,569	—49,064
	2 mos.	739	749,348	143,360	960,258	194,298	231,320	22,991	403,497	44,371	893,157	93.00	67,101	33,431	33,434	—96,764
San Antonio, Uvalde & Gulf	Feb.	317	98,492	19,469	131,069	21,806	13,794	4,258	54,899	5,734	100,491	76.70	30,578	26,818	12,006	—10,442
	2 mos.	317	178,138	42,559	245,749	41,127	30,146	8,959	101,966	12,263	194,461	79.10	51,288	44,233	16,836	—17,357
Seaboard Air Line	Feb.	3,571	3,443,924	902,866	4,826,860	639,549	767,144	147,153	1,805,989	165,891	3,583,663	74.20	1,243,197	1,052,387	941,507	557,501
	2 mos.	3,571	6,585,893	2,081,339	9,578,697	1,331,480	1,612,459	303,765	3,666,212	337,531	7,364,110	76.90	2,214,587	1,833,123	1,623,808	1,082,459
Southern Ry.	Feb.	6,849	8,215,435	2,315,099	11,413,351	1,600,122	2,112,682	211,045	4,281,791	302,338	8,587,736	75.20	2,825,615	2,274,831	1,929,879	1,681,710
	2 mos.	6,849	15,824,637	5,105,403	22,755,544	3,138,049	4,390,478	443,965	8,776,935	626,684	17,492,233	76.90	5,263,311	4,226,948	3,681,411	3,878,140
Alabama Great Southern	Feb.	318	613,284	145,616	808,247	111,058	211,102	19,556	270,288	25,726	644,460	79.70	163,787	129,596	149,572	124,775
	2 mos.	318	1,198,083	317,946	1,611,609	229,458	405,457	40,132	551,079	49,605	1,288,818	80.00	322,791	254,674	289,422	404,632

* Philadelphia & Reading now filing as Reading Company.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1924—CONTINUED

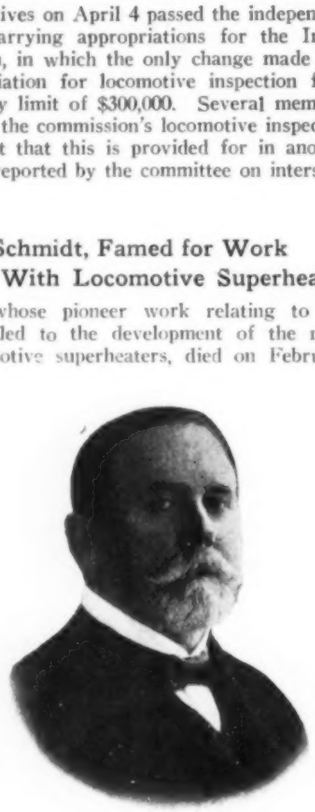
Name of road.		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net operating income.	Net op income 1922.
Cin., New Orleans & Tex. Pacific.	Feb.	338	$1,357,423	$339,501	$1,796,276	$254,832	$407,725	$35,731	$534,589	$46,439	$1,293,495	72.00	$502,781	$442,717	$410,526	$371,330
	2 mos.	338	2,616,565	762,268	3,565,942	509,956	818,205	72,562	1,094,993	88,602	2,609,389	73.20	956,553	832,971	815,787	836,709
Georgia Southern & Florida	Feb.	401	259,960	112,738	403,075	78,589	58,715	8,647	146,188	10,556	306,044	75.90	97,051	78,074	42,441	23,317
	2 mos.	401	510,459	250,607	823,846	144,424	113,661	18,438	309,624	21,662	614,867	74.60	208,979	169,950	87,528	66,033
New Orleans & Northeastern	Feb.	207	379,918	73,999	487,088	66,101	98,356	10,442	146,257	16,435	341,783	70.20	145,305	106,310	108,116	52,724
	2 mos.	207	770,891	156,698	990,348	136,560	199,155	21,526	309,878	31,854	707,857	71.40	283,291	207,118	197,186	156,880
Northern Alabama	Feb.	110	123,541	13,616	140,041	18,394	6,310	2,165	47,983	3,099	77,950	55.70	62,091	56,042	36,747	9,234
	2 mos.	110	238,074	28,498	272,734	23,180	15,280	4,651	85,715	6,524	135,349	49.60	137,385	126,305	83,774	55,205
Southern Pacific	Feb.	7,142	9,731,500	3,368,844	14,619,904	2,260,341	2,870,461	323,706	5,066,111	472,776	11,216,357	76.70	3,403,547	2,278,147	2,171,505	1,544,529
	2 mos.	7,142	19,061,702	6,913,943	28,865,589	4,516,992	5,761,757	602,727	10,220,596	995,254	22,591,752	78.30	6,273,837	3,934,249	3,739,809	3,561,136
Arizona Eastern	Feb.	382	235,731	29,820	280,638	52,859	42,642	3,440	114,907	21,868	236,938	84.40	43,700	16,453	14,274	73,269
	2 mos.	382	494,725	59,085	584,189	107,309	86,591	6,594	200,075	42,474	445,662	76.30	138,527	84,495	73,258	162,413
Atlantic Steamship Lines	Feb.	...	902,873	47,742	1,002,366	15,991	141,133	20,156	696,162	32,952	906,394	90.40	95,966	83,764	82,726	200,367
	2 mos.	...	1,766,813	95,025	1,978,158	49,248	289,936	43,988	1,406,383	63,347	1,852,902	93.70	125,256	101,230	100,062	395,706
Galveston, Harrisb'g & San Antonio.	Feb.	1,379	1,426,787	422,819	1,973,315	403,715	418,052	47,735	707,607	87,858	1,672,284	84.70	301,031	233,791	199,847	50,702
	2 mos.	1,379	2,917,324	879,568	4,033,723	822,492	921,957	95,220	1,494,577	164,912	3,520,386	87.30	513,337	382,217	300,265	173,017
Houston & Texas Central	Feb.	923	790,524	233,985	1,107,049	319,034	217,289	26,121	424,804	41,991	1,027,713	92.80	79,336	36,978	—11,274	—80,651
	2 mos.	923	1,636,870	492,512	2,284,652	590,364	486,447	49,676	864,480	90,952	2,080,012	91.00	204,640	102,454	4,299	111,417
Houston, East & West Texas	Feb.	191	192,578	41,194	247,823	76,279	62,571	3,728	102,386	8,244	249,834	100.80	—2,011	—10,861	—24,137	—45,636
	2 mos.	191	389,511	82,984	499,370	158,123	128,244	7,372	215,451	17,979	520,586	104.26	—21,216	—38,633	—63,149	—40,885
Louisiana Western	Feb.	207	238,163	83,704	356,543	52,035	74,448	10,455	107,803	17,954	266,329	76.00	84,214	50,407	51,251	43,646
	2 mos.	207	512,377	178,685	742,849	101,856	148,868	23,987	223,230	35,536	540,819	72.80	202,030	139,706	142,168	161,844
Morgan's L. & T. R. R. & S. S. Co.	Feb.	400	467,378	140,859	665,316	139,280	174,208	18,869	270,226	34,638	640,046	96.20	25,270	—22,899	—40,891	—44,368
	2 mos.	400	967,818	296,273	1,374,254	274,662	374,017	40,211	576,184	75,156	1,346,528	98.00	27,726	—68,736	—106,267	55,803
Texas & New Orleans	Feb.	507	489,923	154,879	714,518	211,836	148,778	13,734	294,362	27,635	664,866	93.10	49,652	19,798	—20,727	—75,081
	2 mos.	507	1,022,340	322,839	1,466,166	473,603	363,842	28,071	589,190	58,703	1,488,173	101.50	—22,007	—80,942	—158,756	—107,346
Spokane International	Feb.	165	69,119	15,420	90,200	12,742	7,564	3,184	32,516	6,886	63,543	70.40	26,657	20,899	14,548	6,332
	2 mos.	165	136,182	32,080	178,836	22,889	14,903	6,680	68,553	12,250	126,726	70.90	52,110	40,555	28,555	24,963
Spokane, Rutland & Seattle	Feb.	554	487,325	111,538	656,337	45,847	114,505	9,493	199,468	17,339	393,463	59.90	262,874	191,243	185,484	81,917
	2 mos.	554	955,352	236,337	1,316,740	101,848	246,029	19,436	401,329	35,061	818,005	62.10	498,735	353,984	285,143	200,966
Tennessee Central	Feb.	296	152,474	41,959	208,630	25,619	31,740	6,487	83,763	9,596	157,173	75.30	51,457	45,713	40,073	34,921
	2 mos.	296	310,167	81,609	419,515	59,614	68,668	13,334	174,262	19,613	335,324	79.90	84,191	72,229	51,718	55,970
Term. R. R. Association of St. L.	Feb.	37	.....	.....	400,624	83,887	45,497	1,001	176,317	8,420	318,150	79.40	82,474	22,748	119,729	145,769
	2 mos.	37	.....	.....	827,283	187,220	93,054	2,039	358,167	16,991	664,026	80.30	163,257	39,846	244,087	319,855
East St. Louis Connecting	Feb.	1	.....	.....	205,586	13,431	15,261	285	84,113	2,382	115,472	56.20	90,114	81,924	58,405	94,475
	2 mos.	1	.....	.....	430,919	28,805	32,590	583	173,246	4,778	240,002	55.70	190,917	172,036	124,560	163,729
St. L. Merchants' Bridge Term.	Feb.	9	.....	.....	411,547	65,228	32,278	922	206,078	6,870	311,376	75.70	100,171	77,480	72,040	111,782
	2 mos.	9	.....	.....	861,891	133,329	71,906	1,883	430,343	13,998	651,459	75.60	210,432	159,600	146,234	193,988
St. Louis Transfer	Feb.	6	.....	.....	72,238	7,163	8,374	166	46,286	1,239	63,228	87.50	9,010	8,740	1,244	20,563
	2 mos.	6	.....	.....	159,307	15,612	18,059	339	99,785	2,540	136,335	85.60	22,972	22,292	5,472	32,936
Texas & Pacific	Feb.	1,952	1,856,027	531,904	2,624,320	344,812	527,311	53,053	899,781	86,311	1,913,826	72.90	710,494	570,842	500,858	—21,568
	2 mos.	1,952	3,763,787	1,167,620	5,354,953	860,602	941,516	112,411	1,875,967	176,113	3,993,078	74.60	1,361,875	1,080,142	894,904	—33,706
Toledo, Peoria & Western	Feb.	247	88,092	47,336	150,552	18,269	30,868	2,136	73,006	6,989	131,092	87.10	19,460	9,418	730	—9,919
	2 mos.	247	176,119	90,667	293,605	38,413	72,774	4,296	150,579	14,066	279,951	95.30	13,654	—6,388	—19,264	—32,868
Trinity & Brazos Valley	Feb.	368	139,362	19,900	166,854	44,342	49,647	3,472	85,199	12,271	194,057	116.30	—27,203	—34,436	—54,207	—47,193
	2 mos.	368	285,755	43,885	344,795	106,737	110,336	6,672	181,134	24,587	428,025	124.10	—83,230	—97,577	—138,080	—70,378
Ulster & Delaware	Feb.	128	39,195	11,269	78,157	12,808	15,565	1,972	48,659	6,855	85,859	109.80	—7,702	—13,202	—15,801	—10,453
	2 mos.	128	75,013	22,629	156,596	27,823	33,388	3,536	97,145	14,119	176,011	112.30	—19,415	—30,494	—34,974	—26,566
Union R. R. of Penna.	Feb.	45	.....	.....	814,532	74,745	227,620	169	448,550	7,674	758,758	93.20	55,774	44,774	122,899	169,902
	2 mos.	45	.....	.....	1,640,046	142,399	443,108	424	921,179	15,754	1,522,864	92.90	117,182	95,182	253,975	446,798
Union Pacific	Feb.	3,714	6,286,756	1,128,545	8,228,151	649,590	1,701,580	127,738	2,688,718	284,968	5,600,215	68.10	2,627,936	1,970,191	1,903,275	1,825,281
	2 mos.	3,714	12,209,393	2,422,415	16,145,662	1,267 086	3,346,552	263,081	5,268,820	569,631	11.006,077	68.20	5,139,585	3,823,827	3,749,874	3,435,329
Oregon Short Line	Feb.	2,364	2,183,289	349,649	2,720,281	331,829	578,526	42,049	916,644	108,448	2,025,970	74.50	694,311	416,673	348,973	339,551
	2 mos.	2,365	4,423,083	733,557	5,536,533	642,130	1,131,553	83,638	1,921,209	220,646	4,093,821	73.90	1,442,712	886,718	795,177	877,914
Oregon-Wash. R. R. & Nav. Co.	Feb.	2,231	1,834,025	358,819	2,379,365	308,982	376,632	60,359	815,828	115,872	1,704,236	71.60	675,129	504,106	427,803	—248,348
	2 mos.	2,231	3,550,911	768,782	4,698,400	599,473	758,542	122,832	1,756,104	236,133	3,528,873	75.10	1,169,527	829,874	689,167	—348,522
St. Joseph & Grand Island	Feb.	258	248,636	24,750	288,554	31,420	43,178	2,937	117,490	11,636	206,697	71.60	81,857	68,541	50,174	4,276
	2 mos.	258	474,683	49,300	553,546	68,058	92,484	5,907	232,846	24,126	424,128	76.60	129,418	102,785	74,250	21,398
Utah	Feb.	102	113,174	468	114,273	22,999	42,648	362	28,079	5,814	99,902	87.40	14,371	7,180	—3,017	23,021
	2 mos.	102	297,545	977	299,572	44,101	87,164	775	72,074	15,945	220,059	73.50	79,513	62,131	41,437	49,308
Virginian	Feb.	544	1,566,053	66,602	1,726,535	122,110	361,362	12,070	511,838	14,405	1,021,930	59.20	704,605	558,147	566,843	435,668
	2 mos.	544	2,944,464	138,324	3,263,694	228,766	715,210	25,052	1,005,165	33,251	2,005,685	61.50	1,257,909	965,127	972,821	880,618
Wabash	Feb.	2,486	4,446,932	673,577	5,476,157	678,525	1,033,186	126,396	2,261,148	155,143	4,279,308	78.10	1,196,879	960,360	624,183	306,686
	2 mos.	2,486	8,283,361	1,451,829	10,478,520	1,315,253	1,949,068	265,041	4,567,611	327,348	8,475,537	80.90	2,002,983	1,545,432	951,725	639,240
Western Maryland	Feb.	804	1,512,996	61,184	1,646,116	189 996	368,704	36,823	559,984	42,732	1,269,994	73.50	476,122	346,122	343,633	335,971
	2 mos.	804	3,056,113	128,891	3,326,326	397,791	725,875	72,793	1,138,101	90,397	2,448,331	73.60	877,995	697,995	667,881	655,087
Western Pacific	Feb.	1,042	692,645	113,053	859,519	148,330	194,015	33,022	329,643	40,677	759,410	88.40	100,109	16,720	84,320	73,765
	2 mos.	1,042	1,431,115	241,760	1,792,100	276,856	395,376	66,799	706,778	75,136	1,551,160	86.60	240,940	74,289	198,129	150,960
Wheeling & Lake Erie	Feb.	511	1,429,332	56,248	1,567,753	141,489	395,493	26,788	566,295	35,725	1,168,578	74.50	399,175	285,312	226,769	—5,437
	2 mos.	511	2,789,567	114,849	3,064,674	289,063	802,250	50,178	1,121,415	69,763	2,337,642	76.30	727,032	502,679	431,492	—68,216

House Passes I. C. C. Appropriation

The House of Representatives on April 4 passed the independent offices appropriation bill, carrying appropriations for the Interstate Commerce Commission, in which the only change made was an increase in the appropriation for locomotive inspection from $290,000 to the full statutory limit of $300,000. Several members spoke in favor of increasing the commission's locomotive inspection force but it was pointed out that this is provided for in another bill which will probably be reported by the committee on interstate commerce.

Death of Dr. Wilhelm Schmidt, Famed for Work With Locomotive Superheater

Dr. Wilhelm Schmidt, whose pioneer work relating to the art of steam superheating led to the development of the most widely used types of locomotive superheaters, died on February 16 at Bethel, near Bielefeldt, Germany, at the age of 66. Dr. Schmidt started his career as a locksmith and through coincidences his natural ability to speculate correctly on matters of physics and engineering came to the attention of prominent men who made it possible for him to educate himself and carry through the realization of his ideas. Schmidt, who in early years recognized the great importance of the superheating of steam for the economy of steam engines, spent the larger part of his life in fighting the prejudices that made learned engineers opposed to this practice and to build up an organization which was finally able to overcome these prejudices and carry his ideas to commercial success. His best known accomplishment was the creation of a practical locomotive superheater, but he also did much towards the practical superheating of steamships and stationary power plants. In the last ten years of his life he spent much effort and vast sums of money on the demonstration of practical ways and means to combine the thermal advantages of high superheat with the thermal advantages of relatively high steam pressures, which he termed "super-pressures." While he did not live to see his inventions relating to steam super-pressures widely exploited, he had the satisfaction of having the engineering fraternity of his own country acknowledge the genius of his conceptions in this field, also. As a man entirely self-educated, he had many unusual honors conferred upon him, and one of the universities of his country conferred upon him an honorary degree of Doctor of Engineering.



Dr. Wilhelm Schmidt

Conservatives Oppose C. N. R. Branch Line Bill

While the Canadian National Railways' "omnibus" bill providing for the construction of branch lines passed the House of Commons last session with little or no opposition the slightly revised program submitted to the House of Commons early last week by George P. Graham, Minister of Railways and Canals, in the form of 26 separate measures for as many lines has already met with stubborn opposition from the Conservatives, while the members of the same party in the Senate are again prepared to throw out most of that program when it reaches the Upper Chamber as they threw out the entire measure last session. There will be no difficulty in ultimately getting the 26 bills through the House of Commons, as a vast majority of the Liberals and all of the Progressives—the latter will be the largest beneficiaries if the program goes through—are voting for the bills as they come up, while there are only a little over 50 Conservatives to vote against them.

These are, however, taking an active part in the debate and are demanding, as each resolution on which the bills are subsequently based is presented, that the Minister of Railways submit detailed information of cost, of district to be served and the traffic possibilities. The Minister stated at the outset that he preferred to give this information at the proper time, which he considered to be after the resolutions passed but before the bills were dealt with. Arthur Meighen, leader of the Conservatives, demanded on Tuesday of last week that the Minister obtain and submit to the House a signed statement from Sir Henry Thornton, president of the Canadian National Railways, that the latter vouched for the need of every branch line he asked to be built. That statement was received by the Minister and was read by him on Thursday of last week in the House.

"I can think of no more effective way to eventually bring about the ruin of the Canadian National Railways than a refusal to embark upon and consistently maintain a reasonable branch line program," said Sir Henry Thornton in his statement. "No railway can stand still, and success can only be achieved by keeping abreast of the times in the fulfillment of transportation responsibilities." Sir Henry laid down four factors in the preparation of the branch line program: (1) the money already spent and the work already done on each line where such condition existed; (2) the strategic, economic and traffic value of each branch; (3) the measure of relief afforded to farmers by shortening the road haul on grain and other products; (4) a regard for the presumable aggregate sum which the finances of the Dominion would permit to be devoted for such a purpose."

Net Return for February 6.28 Per Cent

Class I railroads operating 235,901 miles earned in February at an annual rate of return of 6.28 per cent on their tentative valuation, freight traffic for that month having been the greatest for any February on record, according to a compilation made by the Bureau of Railway Economics of returns filed with the Interstate Commerce Commission. The net operating income was $71,191,600. The same roads in February last year earned a net operating income of $39,274,900, which was at the annual rate of return of 3.76 per cent. In January, 1924, the net operating income was $51,281,000 or 4.38 per cent. Operating revenues of the Class I roads in February amounted to $478,914,250, an increase of $31,965,380 or 7.2 per cent over the same month last year. Operating expenses totaled $374,699,900, a decrease of $1,306,700 or three-tenths of one per cent.

Compilations by the Bureau of Railway Economics show the annual rate of return for the carriers for the first two months in 1923 based on their property investment to have been 4.62 per cent. By sub-districts the returns were:

		Per cent
New England Region	$4,115,040	4.36
Great Lakes Region	22,893,594	5.53
Central Eastern Region	23,797,812	4.89
Pocahontas Region	6,677,306	5.44
Southern Region	24,165,452	5.77
Northwestern Region	8,327,431	2.66
Centralwestern Region	21,657,136	4.23
Southwestern Region	10,851,437	3.71

Thirty Class I carriers operated at a loss in February, of which 12 were in the Eastern district and 18 in the Western. In January 40 roads had operating deficits.

The railroads in the Eastern district had a net operating income in February of $33,069,100, which was at the annual rate of return of 7.11 per cent on their tentative valuation. This compared with a net operating income in February last year of $17,661,300 or 4.23 per cent. Freight traffic in the Eastern district in February, according to incomplete reports, was more than 11 per cent above the corresponding period the year before. Operating revenues of the Eastern carriers totaled $240,152,480, an increase of 6.6 per cent over February last year, while operating expenses amounted to $191,839,660, a decrease of one-half of one per cent. Class I carriers in the Eastern district earned at the annual rate of return during January and February this year of 5.83 per cent on their valuation or $57,483,750.

Carriers in the Southern district in February had a net operating income of $14,037,240, which was at the annual rate of return of 7.56 per cent. The net operating income of the Southern carriers in February last year was $10,534,550 or 6.01 per cent. Freight traffic on the Southern roads during the month increased

more than 8 per cent over the same month last year. Operating revenues of the Southern roads in February amounted to $68,038,470, an increase of 7½ per cent over the same month last year, while operating expenses totaled $49,814,200, an increase of 2.7 per cent compared with February one year ago. The net operating income for the Class I carriers in the Southern district for January and February of this year totaled $24,165,450, which would be at the annual rate of return of 6.72 per cent.

Carriers in the Western district had a net operating income in February of $24,085,275, which was at the annual rate of return of 4.98 per cent compared with $11,079,000 or 2.46 per cent for the same month last year. Freight traffic in the Western district showed an increase of approximately eight per cent over February last year. Operating revenues of the Western carriers totaled $170,723,290, an increase of 7.8 per cent over February, 1923, while their operating expenses amounted to $133,046,000 or a decrease of 1.2 per cent. Class I carriers in the Western district in January and February earned at the annual rate of return of 4.26 per cent, their net operating income amounting to $40,836,000.

Revenues and Expenses of Canadian Roads—January

The Canadian railways showed practically no change in operating revenues in January from the same month last year but a saving of $1,136,757 in operating expenses was effected, reducing the operating ratio from 97.92 per cent to 94.69. Freight traffic declined 4.5 per cent but passenger traffic increased 4 per cent. The total payroll was cut by $118,359 by a reduction of 1,803 in the number of employees. Average train loading declined from 542.4 net tons to 527.3 net tons.

Canadian National revenues and expenses for January this year were as follows:

	1924	1923
Operating Revenues		
Freight	$11,210,631.28	$11,778,704.01
Passenger	2,492,066.75	2,315,652.64
Mail	257,377.55	264,233.20
Express	796,273.45	758,254.38
Other freight train	3,922.11	2,500.00
Other passenger train	183,106.18	169,606.33
Water line	.....	.....
All other	562,727.87	506,836.75
Total railway operating revenues.	$15,506,105.19	$15,795,787.31
Operating Expenses		
Maint. of way and structures	$2,273,087.69	$2,740,090.83
Maint. of equipment	3,737,164.22	3,595,245.89
Traffic	351,712.24	350,082.98
Transportation	8,481,644.12	9,428,808.04
Misc. operations	163,464.25	141,630.55
General	502,373.40	543,229.52
Trans. for investment	Cr. 20,330.64	Cr. 40,163.47
Total railway operating expenses.	$15,489,115.28	$16,758,924.34
Operating Income		
Net operating revenue	$16,989.91	Dr. $963,137.03
Railway tax accruals	218,558.99	197,702.61
Uncollectable revenues	997.28	8,291.66
Hire of equipment	Cr. 118,962.43	Cr. 307,871.82
Joint facilities rents	Cr. 20,679.13	Cr. 9,925.59
Operating income	Dr. 62,924.80	Dr. 851,333.89

Canadian Pacific revenues and expenses follow:

	1924	1923
Operating Revenues		
Freight	$9,312,965.80	$9,097,351.91
Passenger	2,238,638.73	2,117,509.09
Mail	303,299.78	306,507.87
Express	439,376.01	438,193.10
Other freight train	5,298.84	4,472.02
Other passenger train	241,452.44	241,744.51
Water line	45,236.98	49,870.42
All other	518,366.16	562,344.63
Total railway operating revenues.	$13,104,634.74	$12,817,993.55
Operating Expenses		
Maint. of way and structures	$1,565,274.22	$1,475,728.15
Maint. of equipment	3,421,088.18	3,203,099.49
Traffic	688,221.84	653,714.74
Transportation	6,248,360.14	6,469,798.84
Misc. operations	164,349.86	183,437.72
General	308,328.91	329,398.73
Trans. for investment	.....	.....
Total railway operating expenses.	$12,395,623.15	$12,315,177.67
Operating Income		
Net operating revenue	$709,011.59	$502,815.88
Railway tax accruals	282,022.80	270,455.50
Uncollectable revenues	.....	.....
Hire of equipment	Cr. 381,806.99	Cr. 489,286.90
Joint facilities rents	Cr. 51,603.57	1,621.07
Operating income	860,399.35	720,026.21

Traffic News

"Stag sleeping cars" (cars reserved exclusively for men) are now run by the Pennsylvania Railroad between Philadelphia and Pittsburgh; between New York and Cape Charles, Va., and between New York and Washington; one car each night on each run.

At a meeting of the Ft. Wayne Freight Agents' Association on April 3, G. J. Gallagher, freight agent of the New York, Chicago & St. Louis, was elected president and F. M. Eakin, freight agent of the Pennsylvania, was elected secretary. The association will meet twice each month.

The Transportation Club is the name of a new organization of railroad, steamship and industrial traffic men which was organized in Philadelphia last week and which proposes to hold weekly meetings. E. H. Porter, of the Atlantic Refining Company, presided at the first meeting.

The Traffic Club of the Cincinnati (Ohio) Chamber of Commerce has adopted resolutions disapproving modification of the Transportation Act, 1920, and calling for non-political appointments to membership on the Interstate Commerce Commission; and has voted in opposition to the Gooding bill which would make the long and short haul section of the law inflexible.

The Chicago & Eastern Illinois now grants reduced round-trip fares for home seekers to destinations in Florida, Georgia and other points in the southeast for parties of five or more traveling together on one ticket, beginning April 1. Dates of sales are the first and third Tuesdays of each month. The return limit is 21 days from date of purchase. Certain stop-over privileges also will be granted.

The Illinois Central is granting round-trip reduced fares for home-seekers to destinations in Florida, Georgia, Alabama, Mississippi, Tennessee and Louisiana from all points on its northern lines on a basis of one fare plus $2 for the round-trip for parties of five or more on one ticket. The tickets are limited to 21 days from date of sale and permit stop-overs in both directions in home-seekers' territory.

The Shreveport Traffic Club has been organized at Shreveport, La.; President J. M. Campbell, general freight and passenger agent of the Louisiana Railway & Navigation Company; Secretary H. L. Viser, traffic manager of W. H. Werner Construction Company. The first regular meeting of the club was held on March 31 with an attendance of about 150. The organizers of the club think that the membership can soon be doubled.

The Canadian Pacific recently transported a solid trainload of automobiles across Canada from Windsor, Ont., by way of West Toronto, Sudbury, Port Arthur, Winnipeg, and Medicine Hat, to Vancouver, B. C., a distance of 2,925 miles, in seven days. The train consisted of 41 cars, carrying 246 autos. Traveling 2,925 miles in seven days (168 hours) makes an average of about 18 miles an hour. West Toronto is 221 miles East of Windsor.

The Great Northern and the Chicago, Burlington & Quincy announce that, beginning June 1, the Oriental Limited which runs between Chicago and the Pacific coast will consist of new cars throughout. Among the innovations will be shower baths and a barber for men, shower baths for women, a women's smoking and retiring room, a hairdresser, a soda fountain. The train will leave Chicago at 11 p. m. instead of 11:30 p. m. and will make the run to Seattle in 70 hours.

Means of co-ordinating railway and water transportation were considered at a conference on April 4 between President Coolidge and the advisory committee recently named by him to study the subject. Secretary Hoover of the Department of Commerce was selected as chairman of the committee, the other members of which are the chairman of the Shipping Board, chairman of the Interstate Commerce Commission, the president of the Fleet Corporation, Daniel Willard, president of the Baltimore & Ohio, and Arthur G. Smith, president of the American Steamship Owners Association.

Gold Hunters Use Airplanes

Miners rushing into the new gold field in western Quebec are being carried from Angliers, Que. (the end of the railroad) by airplane, as a result of a contract between the Canadian Pacific and an air transportation company. The airplanes, which meet all trains of the C. P. R. at Angliers, make the 60-mile trip to Rouyn, the center of the new field, in 55 minutes. Five passengers with a small amount of baggage can be carried in each plane. Before the introduction of airplanes, the trip into the gold field by land and water required 2½ days.

For Clean Box Cars

Co-operation between railroads and shippers in providing at all times clean cars for loading freight is one of the most important of the subjects which were discussed at Grand Rapids, Michigan, at the last meeting of the Great Lakes Shippers Regional Advisory Board, and the publicity committee of the Board calls upon regional conferences everywhere to follow up this subject. Every car when unloaded should be cleared of all dunnage, blocking, bracing, stripping, etc., and agents should see that cars set for shippers are always clean. Violations of good practice in this matter should be promptly reported by shippers to the district manager of the car service division. The committee which considers this subject proposes a rule that where a car arrives at destination with its contents in a damaged condition, the consignee shall not be required to assume the expense of removing damaged goods which he has rejected.

Airplane Service in Canada

A novelty in train service will be tried out this summer by the Canadian Pacific on the line which has been built to take care of the traffic in and out of the new gold fields in Rouyn Township, Quebec Province. This new El Dorado is to be made accessible to travelers by the aid of water plane service beginning on May 18, the name of the new company being the Laurentide Air Service, Limited, of Montreal. Acting in conjunction with the Canadian Pacific that air service firm will operate a flying boat from Angliers, the end of the new Canadian Pacific line, to Lake Fortune and Rouyn. Large flying boats capable of carrying five passengers will meet all C. P. R. trains to provide transportation for prospectors, tourists and supplies over the 50-mile gap between the end of steel and the gold fields. The flying boats will make the trip at a speed of about 100 miles an hour, thus cutting the normal traveling time over this difficult country from two days to fifty minutes.

Argument on Postponement of Section 28 Order

Oral argument will be heard by the Interstate Commerce Commission at Washington on April 17 on the sole question of the propriety of extending beyond May 20 the effective date of the commission's order of March 11 terminating its suspension of the provisions of section 28 of the merchant marine act, which confine the application of export and import rates by rail in the United States to commerce carried in American vessels. The commission in assigning the case for argument, after it had held that under the law it had no choice in the matter, acted in response to a petition filed by the National Industrial Traffic League, the Millers' National Federation, the Maritime Association of the Boston Chamber of Commerce, the Texas Gulf Sulphur Company and the Western Petroleum Refiners' Association, representing "shippers generally throughout the United States," requesting the commission to postpone its order. These and other shippers as well as some railroad traffic officials have been appearing at hearings before the House committee on merchant marine and fisheries on a bill introduced by Representative Newton of Missouri to amend the section to give the Interstate Commerce Commission some discretion in the matter. Mr. Newton has also indicated his intention of introducing a bill to postpone the effective date of the law, and Senator Lodge has introduced a bill in the Senate to amend it. The issuance of orders putting the section into effect after it had been held in abeyance for four years has aroused a storm of protest among shippers, on the ground that it causes discrimination between ports and that the Shipping Board has not adequate tonnage at many ports and for many kinds of freight. The Shipping Board supports the present law.

Commission and Court News

State Commissions

The New York State Public Service Commission has made a special report on its regular semi-annual inspection of service on the Long Island Railroad outside the limits of New York City (within the city this road comes under the authority of the Transit Commission). The inspection covered four days in March. The report says that trains running toward New York were on time 92 per cent of the trips while trains running from New York showed only 68 per cent on time. On one of the inspection days, a severe snow and rain storm, breaking down some telegraph and telephone lines, caused some delay. Dirty windows in passenger cars and the presence of a number of old coaches in poor repair constituted the subject of one paragraph of the report but the electric cars in the yard at Carlton avenue were found clean inside and out. Inadequate and inefficient forces in the yards were mentioned as probable causes of unsuitable cars. Officers of the company told of their efforts to improve service and of their purpose to get rid of inefficient locomotives when certain sections shall have been electrified which will be within the next two years.

United States Supreme Court

The Supreme Court of the United States in a decision by Justice Sutherland handed down on April 7, affirmed the decision of the circuit court of appeals for the eighth circuit to the effect that the director general of railroads is not bound by the three-year limitation of paragraph 3 of section 16 of the interstate commerce act in beginning actions for the collection of undercharges incurred during the period of federal control. The case was that of the E. I. DuPont De Nemours Company v. James C. Davis, director general of railroads, as agent.

The Supreme Court of the United States, in a decision by Justice McReynolds handed down on April 7, reversed the decision of a lower court and held that rates made in violation of the long and short haul rule of the fourth section of the interstate commerce act do not afford adequate basis for the award of reparation to a shipper except upon an application to the Interstate Commerce Commission and a showing of pecuniary damage.

Court News

Decisions Under Federal Employers' Liability Act

The New Jersey Supreme Court holds that an employee engaged in renewing cross ties on a main track, injured while relaying the planks of a private crossing, was engaged in interstate commerce.—Vincelli v. New Jersey Central (N. J.) 121 Atl. 132.

If repair work or maintenance withdraws an instrumentality from use in commerce for an unreasonable time, the instrumentality cannot be held engaged in interstate commerce. The cessation of use for five weeks during a work of reconstruction of a new ash pit for locomotives, is such a withdrawal; and an employee engaged in restringing power wires on poles shifted because of this construction was held not engaged in interstate commerce.—Wallace v. New York, N. H. & H. (Conn.) 121 Atl. 878.

The New York Court of Appeals holds that a track laborer, cutting grass and weeds near the track and picking up dropped spikes and drawheads in an interstate railroad's yard, is engaged in interstate commerce.—Quirk v. Erie, 235 N. Y. 405, 139 N. E. 556.

A head brakeman on an interstate freight train running between Oshkosh and Milwaukee, during his hours off duty at Milwaukee occupied the caboose on his train as his abode. While doing so he was injured by a sudden jolt caused by the coupling of the first two cars by the switching crew making up the train more than an hour before its time for starting for Oshkosh. The Minnesota Supreme Court holds he was not employed in interstate commerce when injured.—Smith v. Chicago, M. & St. P. (Minn.) 195 N. W. 534.

Labor News

The Chesapeake & Ohio announces that an increase of pay of 5½ per cent has been granted to enginemen, firemen and hostlers, the increases to take effect as of April 1.

The Nashville, Chattanooga & St. Louis has granted increases of one cent an hour to employees in the mechanical department; mechanics, carmen, helpers, apprentices and laborers.

The Louisville & Nashville has awarded a wage increase of approximately five per cent to its conductors and other trainmen. This increase was granted following negotiations between the management of the road, the Order of Railway Conductors and the Brotherhood of Railroad Trainmen.

The dispute between the New York, New Haven & Hartford and the enginemen and firemen for wages has been brought before the Railroad Labor Board and the board has ordered a hearing for April 16. The railroad company notified the board that a strike vote was being taken and that a walk-out was imminent.

To enable their union to become "more militant" railway shopmen of the Canadian Pacific Railway last week devised ways and means of increasing the revenue of their organization by 100 per cent. The decision was made by forty delegates who attended a convention of the company's Federation of Employees. Their action is regarded in Montreal as significant, in view of the approval last week of a draft wage scale which would raise the wages of shopmen to the 1920 level.

Minor Labor Organizations Oppose Labor Bills

Independent organizations of railroad employees who are not members of the national brotherhoods have united in opposition to the Howell-Barkley bill, now before Congress, which proposes amendment of the labor provisions of the Transportation Act. Representatives of the independents, who claim an aggregate membership of 700,000 railroad employees, met in Chicago on April 4 under the direction of W. C. O'Neil, president of the International Association of Railroad Supervisors of Mechanics, to complete their organization. Included in the representation at the meeting were mechanics and helpers, all classes; dining car conductors; laborers, all classes; claim adjusters; special police; maintenance of way employees and independent enginemen and firemen. A committee of three was appointed to appear before the senate committee to oppose the Howell bill. A resolution was passed, demanding that the Esch-Cummins law be permitted to remain unchanged.

Western Roads Advance Conductors and Brakemen Five Per Cent

Forty-four of the principal roads west of Chicago and the Mississippi River, acting through a committee of 10 general managers (W. M. Jeffers, chairman), signed contracts at Chicago on April 8 with the chiefs of the conductors' and the brakemen's brotherhoods, providing for general advances in pay said to be something more than five per cent; and agreement was reached on a few changes in working conditions. Five roads were not parties to the agreement; the Southern Pacific (Pacific System); the Denver & Rio Grande Western; the Northwestern Pacific; the Chicago & Alton and the Minneapolis & St. Louis.

It is said that the number of men affected is about 80,000 and that the estimated total annual increase in wages is $5,000,000.

Passenger conductors will receive an increase of about 30 cents a day; freight conductors, 36 cents a day; yardmen, 32 cents a day.

Present average rates of the different classes, said to be based on actual payments in July, 1923, are as follows: Passenger conductors, $6.40 a day; baggagemen, $4.56; brakemen and flagmen, $4.40. Freight conductors, through trains, $5.91; local trains, $6.37; freight brakemen, through trains, $4.59; local trains, $4.95. Yard foremen, $6.34; helpers, $5.87; switch tenders, $4.40.

No estimate is given of the amount of saving accruing to the roads by reason of changes in rules.

Foreign Railway News

Anatolian Railway to Buy Cars and Locomotives

The Anatolian Railway plans to spend over $3,500,000 during the current year for the purchase of 30 locomotives, a number of passenger cars and a new station at Haidir-Pasha, according to Commerce Reports.

Pan-American Railway Committee

The Pan-American Union has announced the appointment of a committee to work for the completion of a through railway line connecting the leading countries of North and South America. The members of this committee are: J. A. Briano (Argentina); Tobias Moscoso (Brazil); S. M. Vicuna (Chile); F. P. de Hoyos (Mexico); C. M. Pepper and V. L. Hayes (United States). One vacancy remains to be filled.

Successful Year for Swiss Federal Railways

For the first time since 1913 the Swiss Federal Railways in 1923 had a successful year, according to Commerce Reports, the net results showing a small profit after payment of interest on loans and on floating debt, redemption of notes and deposits made to special funds. This hopeful outlook of the state railways for 1924 is felt to be one of the most encouraging indications that the economic position of Switzerland is gradually righting itself.

Both passenger and freight traffic showed satisfactory increases as did revenues, while operating expenses were lowered by reducing the number of employees and their wages, by increases in the hours of labor and by reduction in the cost of coal. The price paid for the latter in 1922 was 158 francs per ton, while in 1923 the price was 65 francs. [The Swiss franc is worth 17.5 cents at present exchange rates.] The total saving on coal in 1923 approximated 40,000,000 francs, part of which may be attributed to the increased electrification of the railways. Perhaps the outstanding feature of the year was the lowering of the operating ratio from 88 per cent in 1922 to 69 per cent in 1923.

An exceptional element contributing to the good showing was the unusually heavy east-to-west traffic between Paris and Vienna, caused by political developments beyond the Swiss borders. This advantage lasted from February till late in December and had a decidedly favorable influence on the results for the year.

During 1923 the Federal Railways carried 86,883,670 passengers, as against 81,032,550 in 1922. The revenue from this traffic in 1923 was 126,582,633 francs, compared with 121,130,930 francs in 1922, an increase of 5,451,710 francs.

In 1923 a total of 14,652,370 tons of merchandise was carried, compared with a traffic of 13,245,115 tons in 1922. The gross earnings from this source were 219,739,925 francs, an increase of 15,508,033 francs over 1922.

The total revenue for 1923 shows an increase over the previous year of 21,222,075 francs and aggregated 365,437,524 francs. The gross operating expenses, amounting to 306,287,299 francs in 1922, were reduced to 251,880,593 francs in 1923.

The Swiss railway budget for 1924 allots a total of 72,342,550 francs for construction. Receipts for the present year are estimated at over 375,000,000 francs, and the estimated expenses approximate 278,000,000 francs. The program for electrification will be accelerated as much as possible during 1924. All sections of the country demand their share of this new mode of traction.

The following lines are not electrically operated: Isel-Brig-Sion, Bern-Scherzlingen, Chiasso-Lucerne, Goldau-Zug, Immensee-Rothkreuz, and Lucerne-Zurich—a total of 256 miles. Electrification has begun on the Lucerne-Basel, Thalweil-Richterswil, Zurich-Bern, Sion-Lausanne, Lausanne-Vallorbe-Yverdon lines—a total of 241 miles. The Rennes-Geneva line is on the program for electrification this year.

It is believed that 1924 will prove even more successful than last year in spite of the fact that reductions in passenger fares will probably be made and perhaps in freight rates as well. Betterments are planned in the matter of train schedules; and increased tourist traffic, reduced labor cost and lower fuel prices are also expected.

Equipment and Supplies

Locomotives

THE CHESAPEAKE & OHIO is inquiring for 100 heavy Mikado type locomotives.

THE NEW YORK, NEW HAVEN & HARTFORD is inquiring for 15 steam locomotives.

THE NEVADA CONSOLIDATED COPPER COMPANY has ordered 2, 0-6-2 type locomotives from the American Locomotive Company.

THE CHICAGO, ROCK ISLAND & PACIFIC, reported in the *Railway Age* of March 15 as inquiring for 10 Mountain type locomotives, has ordered this equipment from the American Locomotive Company.

Freight Cars

AMERICAN REFRIGERATOR TRANSIT COMPANY.—See Missouri Pacific.

THE UNION PACIFIC will build 93 caboose cars of 30 tons' capacity in its shops at Albina, Ore.

THE AMERICAN ROLLING MILL COMPANY, Middletown, Ohio, is inquiring for 12 gondola car bodies of 50 tons' capacity.

THE WESTERN ELECTRIC, reported in the *Railway Age* of March 29 as inquiring for 4 logging cars, has ordered this equipment from the Magor Car Corporation.

THE CHICAGO, BURLINGTON & QUINCY, reported in the *Railway Age* of March 8 as inquiring for 1,000 stock cars, has ordered this equipment from the Streator Car Company.

THE UNION RAILROAD, reported in the *Railway Age* of February 23 as inquiring for 1,000 hopper cars, has ordered 500 steel hopper car bodies from the Greenville Steel Car Company.

THE MISSOURI PACIFIC, reported in the *Railway Age* of February 16 as inquiring for 1,000 automobile cars, is reported to have ordered this equipment from the Pennsylvania Car Company. The Missouri Pacific is now inquiring for 2,000 refrigerator cars for the American Refrigerator Transit Company.

THE MISSOURI PACIFIC reported in the *Railway Age* of March 1 as inquiring for repairs to 500 box cars, 250 composite gondola cars and 300 steel gondola cars has placed orders for the repair of 600 box cars with the Sheffield Car Company, Three Rivers, Mich., for repairs to 400 wooden gondola cars with the American Car & Foundry Company and will make repairs to 200 gondola cars in its own shops.

Passenger Cars

THE GULF MOBILE & NORTHERN has placed an order with the J. G. Brill Company for 2 additional "Model 55" gasoline cars.

THE BLUE RIDGE RAILWAY, a subsidiary of the Southern, has bought 2 motor cars from the Edwards Railway Motor Car Company.

THE YADKIN RAILROAD, a subsidiary of the Southern, has bought 1 motor car from the Edwards Railway Motor Car Company.

THE ATCHISON, TOPEKA & SANTA FE, reported in the *Railway Age* of March 22 as inquiring for 10 postal cars, has ordered this equipment from the Pullman Company.

THE CHICAGO, BURLINGTON & QUINCY, reported in the *Railway Age* of February 9 as inquiring for 25 baggage cars and 5 combination baggage and mail cars, has ordered 6 combination baggage and mail cars from the American Car & Foundry Co., and has decided not to buy the other equipment.

THE CHICAGO, ROCK ISLAND & PACIFIC, reported in the *Railway Age* of March 15 as inquiring for 8 dining cars and 5 head-end buffet baggage cars, has ordered this equipment from the Pullman Company.

THE NEW YORK, CHICAGO & ST. LOUIS, reported in the *Railway Age* of March 15 as inquiring for 4 combination mail and express cars, 3 combination baggage and express cars and 5 coaches, has ordered this equipment from the Pullman Company.

THE ATCHISON, TOPEKA & SANTA FE, reported in the *Railway Age* of February 2 as inquiring for 10 smoking cars, 10 chair cars, 10 coaches and 10 three-compartment cars, has ordered this equipment from the Pullman Company. The item reported in the *Railway Age* of March 29 that an order had been placed for 26 cars was an error.

THE SOUTHERN PACIFIC, reported in the *Railway Age* of March 8 as inquiring for 29 cars, has ordered 6, 58-ft. electric motor coaches for the Southern Pacific electric lines in California, from the St. Louis Car Company; 10, 72-ft. interurban coaches for the Southern Pacific lines west of El Paso, from the Pullman Company; 4, 72-ft. coaches for lines west of El Paso; also 5, 60-ft. chair cars and 3, 70-ft. baggage and mail cars, for lines east of El Paso and 1, 70-ft. baggage and mail car for lines in Mexico, from the Standard Steel Car Company.

Iron and Steel

THE NORTHERN PACIFIC has ordered 10,000 tons of rails from the Illinois Steel Company.

THE LONG ISLAND has placed an order for 150 tons of steel with the Shoemaker Satterthwait Bridge Company.

THE CHICAGO & NORTH WESTERN has ordered 2,000 tons of structural steel for bridge requirements during 1924 from the American Bridge Company.

THE GREAT NORTHERN has ordered 12,500 tons of rails from the Illinois Steel Company, 10,000 from the Inland Steel Company and 2,500 tons from the Bethlehem Steel Company.

THE JOINT BRIDGE COMMISSION, Philadelphia, Pa., reported in the *Railway Age* of March 15 as asking for bids on March 19, for steel for the Camden-Philadelphia bridge, has given a contract to the American Bridge Company to fabricate and erect the central span of this bridge to be built over the Delaware river. This work calls for about 19,000 tons of steel.

Large Rail Order of 39 ft. Length for Southern Pacific Lines

Orders have been placed for rail for delivery in 1924 and 1925 for account of Southern Pacific Lines as follows: Tennessee Coal, Iron & Railroad, 63,000 tons; Colorado Fuel & Iron Co., 60,745 tons; Inland Steel Company, 7,500 tons; total, 131,245 tons, of which 31,585 are to be shipped before June 30, 1924; the remainder, or 99,660 gross tons, will be shipped between January 1 and April 30, 1925. These orders contemplate that the rail be delivered in 39-ft. lengths; that of the aggregate amounts above mentioned 49,014 tons be of 90-lb. section, equivalent to 346 track miles; and that 82,231 tons be of 110-lb. section, equivalent to 474 track miles. The 110-lb. section rail will be assigned to the lines west of El Paso; and the 90-lb. section divided between the lines west of El Paso and the lines in Texas and Louisiana. The rail above mentioned is intended to take care of the renewal program of Southern Pacific Lines, also for second track and construction program for 1924 and 1925.

Signaling

THE CHICAGO, BURLINGTON & QUINCY, the Great Northern and the Northern Pacific have selected the Sprague system of automatic train control for installation on one engine district each in compliance with the first order of the Interstate Commerce Commission. The Burlington will install this device between Creston, Iowa, and Omaha, Neb., the Great Northern between Minot, N. Dak., and Williston and the Northern Pacific between Mandan, N. Dak., and Dickinson.

Supply Trade News

The American Car & Foundry Company has acquired the plants of the Pacific Car & Foundry Company at Portland, Ore., and Seattle, Wash.

M. A. Downs and **W. G. Guy** have been appointed service engineers in the railroad department of the **Paige & Jones Chemical Co.**, New York City.

The Lone Star Tank Car Company, Wichita Falls, Tex., is contemplating the construction of a plant for the repairing of tank, steel and gondola cars at Fort Worth, Tex.

W. W. Arpe, assistant manager of sales of the Carnegie Steel Company, the Illinois Steel Company and the Tennessee Coal, Iron & Railroad Company, with headquarters at St. Louis, Mo., has resigned to become a special agent of the **Laclede Steel Company,** with the same headquarters.

S. F. Taylor, of the **S. F. Bowser Company,** Fort Wayne, Ind., has been appointed eastern representative of its railway sales division. Mr. Taylor has held many responsible positions with the Bowser Company over a period of fifteen years. He will have contact with all railroads having offices in New York City and other eastern points.

The North Judson Car & Equipment Company, North Judson, Ind., has been organized for the purpose of rebuilding and repairing railroad freight cars and at a later date to go into the building of new equipment. The company has a tract of 70 acres at North Judson, Ind., on which it is now erecting buildings. **A. M. Oliver** is president and general manager, **C. E. Reese** is vice-president, **A. Lincoln Long** is secretary and treasurer and **J. G. Capouch** is general counsellor.

Janon Fisher, chairman of the board of directors of the **Boyden Steel Corporation,** Baltimore, Md., sailed from New York for London on April 5. Mr. Fisher's trip is in connection with an inquiry recently received by the corporation from the high commissioner of the South African Railways for the use of Boyden six-wheel co-ordinating trucks on proposed new and modern equipment. He will also devote considerable time to the corporation's foreign patent situation.

The Marlin-Rockwell Corporation, on April 1, took over the business, trade name and good will of the Gurney Ball Bearing Company. The officers of the Marlin-Rockwell Corporation are: **F. W. Gurney,** chairman of the board, **Henry K. Smith,** president, **Alfred C. Davis,** vice-president and general manager, and **John H. Walters,** treasurer, with headquarters at 402 Chandler street, Jamestown, N. Y. The management, policy and product of the Gurney Ball Bearing Company will be continued by the new corporation along the same lines as heretofore and the sales representatives will remain the same in each district.

General Electric Company

The General Electric Company reports profits available for dividends in 1923 of $33,525,118 as compared with $26,231,019 in 1922. Net sales billed last year amounted to $271,309,695 against $200,194,294 in the previous year. Unfilled orders at the end of the year were $87,112,000, compared with $76,220,000 at the end of 1922.

The condensed balance sheet shows current assets of $235,315,832, against current liabilities of $31,595,933. Inventories were carried at the end of the year at $83,746,031, compared with $75,334,562 on December 31, 1922. Notes and accounts receivable were carried at $37,987,339, an increase of $2,832,920. The cash balance, including temporary investments in short-term obligations of the United States government, was $91,205,620, compared with $85,341,538 at the close of the previous year. No notes payable or any obligations bearing the company's indorsement were outstanding at the end of the year.

The condensed profit and loss account follows:

	1923	1922
Net sales billed	$271,309,695	$200,194,294
Less: Cost of sales billed, etc.	241,653,949	177,458,012
Sundry income	8,345,782	8,058,684
Net income	38,001,529	30,794,966
Interest payments (and reserve in 1923)	4,476,410	4,563,947
Profit available for dividends	33,525,118	26,231,019
Less 6 per cent cash dividends on special stock	656,379	130,394
Less 8 per cent cash dividends on common	14,289,316	13,943,234
Surplus for the year	18,579,423	12,157,391
Surplus, end of previous year	73,167,048	70,126,922
Less 5 per cent stock dividend	8,984,375	8,717,265
Less appropriation	.....	400,000
Surplus	82,762,096	73,167,048

Obituary

W. T. Tyler, director, vice-president and general manager of the National Safety Appliance Company, with headquarters at Chicago, died at Venice, Calif., on April 6, from apoplexy. He was born in Janesville, Wis., on July 29, 1870, and entered railway service in 1883, as a messenger on the Wisconsin Central and was later an operator and dispatcher on the same road. In 1889 he was employed as a brakeman on the Milwaukee, Lake Shore & Western, now a part of the Chicago & North Western. From that time until 1891 he was a brakeman and conductor on the Northern Pacific, and from 1891 to 1900 he was consecutively yardmaster, trainmaster and division superintendent on the Great Northern. He was appointed a division superintendent on the St. Louis, Iron Mountain & Southern in 1900, and was promoted to general superintendent the following year. He was later successively general superintendent and general manager of the St. Louis-San Francisco. In 1915 he became a superintendent on the Northern Pacific, with headquarters at Pasco, Wash., and on February 1, 1917, was appointed general manager of the St. Louis-Southwestern. On May 15, 1917, he was elected first vice-president of the road, and on November 1, 1917, he resigned to become assistant to the vice-president in charge of operation of the Northern Pacific. On January 22, 1918, Mr. Tyler was appointed assistant to the director of the Division of Operation, with headquarters at Washington, D. C., and was appointed senior assistant director on July 1, 1918. He was appointed director of the Division of Operation on January 15, 1919, in which capacity he served until March 1, 1920, when he became vice-president in charge of operation of the Northern Pacific, which position he held until December 21, 1921. He was elected director, vice-president and general manager of the National Safety Appliance Company in May, 1922, which position he held until his death.

W. T. Tyler

Trade Publications

WOOD CONSERVATION.—The Pittsburgh Testing Laboratory, Pittsburgh, Pa., has recently issued Bulletin 33, in which the preservation of wood by creosoting is discussed, as well as the desirability of inspection and the general consideration of the methods of inspection.

WIRES AND CABLES.—An attractive 36-page booklet, 9 in. by 12 in. in size, entitled "Okonite Installations," has been issued by the Okonite Company, Passaic, N. J. The booklet consists entirely of full-page illustrations showing applications of Okonite wires and cables. These applications include 6 power house installations and 27 railroad installations including stations, shops, signals, interlocking plants and electric traction.

OKONITE INSTALLATIONS.—The Okonite Company, Passaic, N. J., has recently issued an attractively bound, large size, 36-page, illustrated booklet on installations made by this company. Each page is devoted to a large illustration of one installation at one particular point and covers such features as cable crossings, signals and interlocking, electrification, power houses, terminals, etc., at different points about the country and on a wide variety of railroads.

TWIN SPAN TURNTABLES.—The Bethlehem Steel Company, Bethlehem, Pa., has issued a 30-page catalog, TS, illustrating and describing the twin span turntable developed and patented by that company. In addition to a description illustrated by general and detailed drawings and a statement of the advantages in this form of construction, the catalog contains a large number of photographs, showing the various construction features, as well as a set of views showing turntables of this type in use on various railroads.

MAINTENANCE RECLAMATION. A small pamphlet, 8 pages, illustrated, on maintenance of way reclamation by the oxy-acetylene process has recently been issued by the Air Reduction Sale Company, New York. The possibilities of this process of welding are discussed in addition to outlining the economies which can be effected. Considerable information is included on the costs of operations for welding frogs, building up rail ends and switch points and for bonding rail, this information being based on a large number of observations on different roads and under practical conditions.

HERBICIDE.—The Reade Manufacturing Company, Jersey City, N. J., has recently issued a large size, 16-page, illustrated booklet on the chemical method of track weeding as used by this company in the application of its weed exterminator known as Herbicide. The text of the booklet discusses briefly the various methods such as oil burning, superheated steam, etc., following this with a detailed description of this company's method of treatment; the equipment, manner of shipping, types of contract and other information relative to the subject. The illustrations show the various results which have been obtained and the class of equipment which is used.

AN EXPENDITURE of approximately $20,538,000 will be necessary at Port Nelson, on Hudson Bay, the proposed terminus of the Hudson Bay Railway, to accommodate ten 7,000-ton ships, according to an answer made in the House of Commons at Ottawa by the Minister of Railways and Canals to questions asked by one of the Progressive members. Of this total estimated cost $4,600,000 is the usual cost of a 4,000,000-bu. elevator and $400,000 the cost of the railway yard and terminal buildings. The lighthouse crib at the entrance of the harbor would cost $200,000.

Alashehir Station, Smyrna-Cassaba Railway, Turkey

Railway Construction

BALTIMORE & OHIO.—This company has awarded a contract to Joseph E. Nelson & Sons, Chicago, for the construction of a pump house and pipe lines at Baltimore, Md., to cost approximately $30,000.

BEAVER, MEADE & ENGLEWOOD.—This company will soon call for bids for the construction of an extension 30 miles long from Forgan, Okla., to Hooper, reported in the *Railway Age* of March 22.

CENTRAL OF GEORGIA.—This company has awarded a contract to the Davis Construction Company, Atlanta, Ga., for the construction of a viaduct to carry Thirteenth street, Columbus, Ga., over its tracks. The work will cost approximately $300,000.

CHICAGO & NORTH WESTERN.—This company contemplates the construction of a repair shop at Norfolk, Neb.

CHICAGO, ROCK ISLAND & PACIFIC.—This company plans the construction of a passenger station at De Baliviere avenue, St. Louis, Mo.

CITY OF NEWARK (New Jersey).—This municipality is considering methods whereby the right of way of the Morris Canal, formerly owned by the Lehigh Valley Railroad, but now the property of the State of New Jersey and scheduled for abandonment as a waterway, may be utilized to provide rapid transit passenger service and, possibly, industrial freight service. At a recent hearing on the subject at which all railways serving the city were asked to present their views, the Public Service Railway, a street car company, was the only transportation company which went so far as to offer to build or operate a railway in the bed of the canal. Thus far concrete discussion for railway development in the canal bed has been confined to the City of Newark, although the canal extends through other populous sections, including Bloomfield and Paterson, as well as much open territory suitable for residential and industrial developement if adequate railway facilities were made available.

GEORGIA & FLORIDA.—This company contemplates an extension of line from Augusta, Ga., to Greenwood, S. C. (67 miles), the survey for which has been practically completed.

ILLINOIS CENTRAL.—This company has closed bids for the construction of subways in the track elevation work between 147th street and 171st street, Harvey, Ill. This company plans the construction of a second track on the St. Louis division at an estimated cost of $400,000.

LOUISVILLE & NASHVILLE.—This company will construct a steel bridge, 826 ft. long, across Chef Menteur, New Orleans, La., at an estimated cost of $1,500,000.

MISSOURI PACIFIC.—This company has awarded a contract to Joseph E. Nelson & Sons, Chicago, for the laying of 2,800 ft. of 10-in. cast iron pipe at Texarkana, Ark.

NORFOLK & WESTERN.—This company has awarded a contract to H. A. Lucas, Bluefield, W. Va., for the construction of two concrete engine pits and a motor inspection pit at Auville, W. Va., to cost approximately $50,000. The company has authorized the strengthening of a number of bridges on its Cincinnati district to cost approximately $400,000.

SEABOARD AIR LINE.—This company in conjunction with the Florida, Western and Northern, has applied to the Interstate Commerce Commission for permission to build lines which with existing S. A. L. lines will form a short cross-state line between Tampa, St. Petersburg, Belleair and other points on the West coast and Palm Beach on the East coast. An extension from the cross-state line will run to Coleman to a connection with the Seaboard Air Line. The line will be leased and operated by the S. A. L. as a part of its system. The new lines will total about 235 miles and will be laid with 100 lb. rail; maximum gradients will be less than 0.3 per cent and curvature less than 2 deg.

SOUTHERN.—This company has awarded a contract to L. W. Hancock, Louisville, Ky., for the construction of a new roundhouse and flue shop at Spencer, N. C.

SOUTHERN.—In order to provide tracks of sufficient length to hold the 100-car freight trains which it is now running in and out of Atlanta, Ga., the Southern has started work on extensive additions to its Inman Yards, just west of Atlanta. Six tracks, each with a capacity of 100 cars, and two tracks with a capacity of 50 cars each will be provided. The new tracks will enable the yard to take care of 500 more cars than at present and will bring its total capacity up to 4,000 cars. The necessary grading and filling will require the excavation of 37,640 cu. yds. of earth.

SOUTHERN PACIFIC.—This company is calling for bids for the construction of an additional 15-miles of the Natron cutoff from Oakridge, Ore., to Summit.

Long Island Announces Largest Improvement Budget in Its History

The board of directors of the Long Island Railroad last week approved the largest improvement budget ever authorized by that company. The budget includes unfinished improvements carried over from 1923 and large undertakings which cannot be completed until 1925. A summary of the total estimated cost of the improvements covered by the budget shows expenditures aggregating several million dollars, and they are briefly enumerated below:

1. Electrification of the Montauk division from Jamaica to Babylon (27.6 miles). The date set for completion of this work is May, 1925, in time for the summer schedule. This undertaking will cost about $4,000,000, and will improve the operation of the whole railroad by greatly reducing the transfer of passengers at Jamaica. It will enable the railroad to operate more trains in the congested section between Amityville and Jamaica, will lessen the running time of local trains and will help the railroad in handling the congested train operations through Jamaica and to the western terminals.

2. Rebuilding of the Central extension, between Babylon and Farmingdale (7 miles). This will enable the road to operate fast express steam trains to and from points east of Babylon via this route to Jamaica, and thus keep such trains out of the electric operations between Babylon and Jamaica on the Montauk division.

3. Electrification of the freight line from Bay Ridge, Brooklyn, to Fresh Pond, where connection is made with the New York Connecting Railroad (Hell Gate route). Over this route several thousand freight cars are interchanged daily between the Pennsylvania and New York, New Haven & Hartford.

4. New equipment under order to be delivered in 1924 consists of 60 steel motor cars for passenger service, 4 passenger and 5 freight locomotives and 200 gondola cars. The 60 passenger cars added to 40 cars received in the fall of 1923, means that the road will have in operation this summer 100 more motor cars than were operated during the summer rush of 1923. The 1924 equipment will cost $2,838,000.

5. New passenger stations at two points, and changes and improvements of existing stations at several other points.

6. Freight improvements in Long Island City, including additional float bridges and extension of yard. This improvement will cost over $1,000,000.

7. Seventeen projects involving grade crossing eliminations, new streets over or under the railroad, foot bridges, track bridges rebuilt, etc., to cost $2,100,000.

8. The budget also includes twelve items covering improvements in shop facilities, tools, etc., aggregating $400,000, and twenty items covering additions and improvements to existing rolling equipment aggregating $300,000.

9. Additional property for new freight yards, extension of existing yards and delivery tracks are included in the budget, as well as miscellaneous improvements in facilities at passenger and express stations.

10. Re-laying main track with new and heavier rail, installing tie plates, crossing gates, warning bells and signals at grade crossings, and many other miscellaneous items.

The budget does not include several large undertakings in the way of grade crossing eliminations which will probably be settled upon before the year 1925 is ended, nor does it contemplate any electrification projects outside of the projects stated above.

The railroad management feels that the Kaufman law, requiring electrification of all freight yards within the City of New York should be modified.

Railway Financial News

BALTIMORE & OHIO.—*Bonds.*—The Interstate Commerce Commission has authorized an issue of $3,000,000 of refunding and general mortgage 6 per cent bonds to be pledged from time to time as collateral security for short term notes. The company was also authorized to pledge as collateral security for its refunding and general mortgage, $3,000,000 of 6 per cent collateral trust, five-year gold bonds.

CHICAGO & NORTH WESTERN.—*Merger Planned.*—See Chicago, St. Paul, Minneapolis & Omaha.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.—*Merger with C. & N. W.*—Plans for the complete merger of the Chicago & North Western and the Chicago, St. Paul, Minneapolis & Omaha are now being completed and the merger may be effected in the not distant future according to a statement by W. H. Finley, president of both railroads at the annual meeting of the stockholders of the Omaha at St. Paul, Minn., on April 9. This merger, which would result in the consolidation of all departments and their personnel, is planned to precede the general consolidation plan of the Interstate Commerce Commission.

COLORADO, WYOMING & EASTERN.—*New Company.*—See Northern Colorado & Eastern.

DETROIT & MACKINAC.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its Lincoln branch, from Lincoln Junction to Lincoln, Mich., 14.66 miles, and also its Indian River branch, from Tower to Le Grand, Mich., 9.1 miles.

ERIE.—*Annual Report.*—The net income for the year ended December 31, 1923, according to the annual report issued this week, was $8,435,273, compared with a deficit of $3,132,770 in 1922. The income statement compares as follows:

	1923	1922	Increase or Decrease
Operating Revenues:			
Merchandise	$73,207,913	$63,191,282	$10,016,631
Coal	35,533,065	21,353,924	14,179,140
Passenger	14,696,897	13,872,168	824,729
Total, including other	132,978,455	106,874,103	26,104,352
Operating Expenses:			
Maintenance of way and structures	14,301,569	12,699,503	1,608,065
Maintenance of equipment	36,054,579	32,712,642	3,341,937
Traffic	1,942,234	1,822,461	119,772
Transportation	51,319,167	48,582,289	2,736,878
General	3,905,409	3,817,683	87,726
Total operating expenses	108,070,145	100,101,524	7,968,622
Net operating revenue	24,908,310	6,772,580	18,135,730
Railway tax accruals	4,260,003	3,863,226	396,778
Operating income	20,539,117	2,860,993	17,678,124
Net equipment and joint facility rents—debit	2,218,704	2,216,082	2,622
Net railway operating income	18,320,413	644,911	17,675,502
Total non-operating income	4,791,317	11,209,533	—6,418,216
Gross income	23,111,730	11,854,444	11,257,286
Total deductions from gross income	14,676,458	14,987,214	—310,756
Net income	8,435,273	Def. 3,132,770	11,568,042
Applied to sinking and reserve funds	1,217,065	946,047	271,018
Balance for year	7,218,208	Def. 4,078,817	11,297,025

New Director.—Myron C. Taylor, a director of the First National Bank, New York, has been elected a director to succeed E. J. Berwind, resigned.

HOUSTON & BRAZOS VALLEY.—*Acquisition.*—See New Orleans, Texas & Mexico.

KANSAS CITY SOUTHERN.—*Joint Control.*—See Kansas & Missouri Railway & Terminal Co.

KANSAS & MISSOURI RAILWAY & TERMINAL CO.—*Acquisition Authorized.*—The Interstate Commerce Commission has authorized the acquisition by the Kansas City, Kaw Valley & Western of control of the Kansas & Missouri Railway & Terminal Company by purchase of its capital stock. The commission also authorized the acquisition by the Kansas City Southern of joint control with the Kansas City, Kaw Valley & Western of the Kansas & Missouri Railway & Terminal Company by the purchase of one-half its capital stock. The commission holds that the applications to

acquire the bonds of the terminal company are not within the scope of paragraph 2 of section 5 of the Interstate Commerce Act.

LOUISVILLE & NASHVILLE.—*Annual Report.*—The annual report for the year ended December 31, 1923, issued last week, shows a net income of $13,498,935, as compared with a net income of $10,598,019 in 1922. The income account compares as follows:

	1923	1922
Freight revenue	$101,680,240	$90,648,972
Passenger revenue	26,001,967	22,793,320
Total operating revenues	136,375,673	121,138,840
Maintenance of way and structures	18,285,584	16,872,543
Maintenance of equipment	34,429,992	30,017,110
Traffic	2,715,811	2,544,557
Transportation	50,987,533	46,932,231
General	2,950,358	2,707,431
Total operating expenses	109,865,090	99,604,496
Net revenue from railway operations	26,510,583	21,534,344
Railway tax accruals	6,372,310	4,710,247
Total operating income	19,946,272	16,810,396
Net railway operating income	20,673,143	17,604,321
Non-operating income	2,926,429	2,827,407
Total deductions	10,100,637	9,833,709
Net income	13,498,935	10,598,019

MAINE CENTRAL.—*Annual Report.*—The report for the year ended December 31, 1923, shows the following income account:

	1923	1922
Railway operating revenues	$21,192,264	$20,387,172
Railway operating expenses	17,843,124	16,443,382
Net revenue from railway operations	3,349,141	3,943,790
Railway tax accruals	1,182,489	1,180,447
Railway operating income	2,162,465	2,761,245
Net railway operating income	1,983,142	2,842,643
Total other income	189,195	(Dr.)162,730
Gross income	2,172,336	2,679,913
Total deductions from gross income	2,161,872	2,128,756
Surplus after charges	10,464	551,158
Income applied to sinking funds	4,285	18,633
Equipment trust notes, maturity of 1922	.....	80,200
Improvements to road	.....	52,324
Dexter & Newport Railroad 4 per cent bonds assumed, paid Sept. 1, 1917	.....	175,000
Income balance	6,180	225,000

NEW ORLEANS, TEXAS & MEXICO.—*Acquisition of Line.*—The Interstate Commerce Commission has authorized the acquisition by this company of control of the Houston & Brazos Valley by purchase of its stock and other securities.

NORTHERN COLORADO & EASTERN.—*Authorized to Operate Line.*—The Interstate Commerce Commission has issued a certificate authorizing this company, when organized, to acquire and operate a railroad from Laramie, Wyo., to Coalmont, Colo., 112 miles, formerly operated by the Colorado, Wyoming & Eastern, successor to the Laramie, Hahn's Peak & Pacific. The commission has also authorized the issuance of $424,000 of 6 per cent preferred stock, class A; $550,000 of 6 per cent preferred stock, class B, and 25,000 shares of common stock without par value in connection with the acquisition of the property and its reorganization.

NORTHERN PACIFIC.—*Annual Report.*—The annual report for the year ended December 31, 1923, issued this week, shows a net income before dividends of $12,981,426, as compared with $15,056,930 in 1922. The income account follows:

	1923	1922
Mileage	6,668	6,640
Freight revenues	$77,610,570	$71,725,006
Passenger revenues	15,438,784	15,551,897
Total revenues	102,002,060	96,076,066
Maintenance of way expenses	14,022,694	12,826,641
Maintenance of equipment	22,464,342	18,064,615
Transportation	38,535,417	36,801,628
Total expenses	80,364,810	72,654,711
Net operating revenue	21,637,250	23,421,355
Net operating income	17,100,557	19,450,514
Non-operating income	11,181,676	11,271,729
Gross income	28,282,233	30,722,244
Deductions from gross income	15,300,807	15,665,314
Net income	12,981,426	15,056,929
Dividends, 5 per cent	12,400,000	12,400,000
Income balance	581,426	2,656,929

The annual report of the Northern Pacific will be reviewed editorially in an early issue.

Application for Abandonment Denied.—The Interstate Commerce Commission has denied this company's application for authority to abandon its Marysville branch from Clough Junction to Marysville, Mont., 12.57 miles, and also the Red Mountain Branch from Helena to Rimini, Mont., 15.76 miles.

PENNSYLVANIA.—*Annual Meeting.*—At the annual meeting of the stockholders on April 8, a resolution, which was unanimously adopted, was presented by William Wood, requesting the appointment of a "committee of seven stockholders to recommend, after conferring with the president of the company, three stockholders for election as directors, to be voted for by the stockholders at the annual election on April 22, to fill the vacancies then existing through the expiration of term of service, and that the secretary of the company be instructed to publish the names of such nominees and also the names of those, who, at the annual election, are elected directors to fill the vacancies aforesaid."

PITTSBURGH, SHAWMUT & NORTHERN.—*Receiver's Certificates.*—The receiver has applied to the Interstate Commerce Commission for authority to issue $2,170,000 of receiver's certificates of indebtedness and a promissory note for $339,771.

SOUTHERN PACIFIC.—*New Directors.*—James S. Alexander of New York and Paul Shoup of San Francisco have been elected directors to succeed Walter P. Bliss, deceased, and W. A. Worthington, retired from the board.

UNION PACIFIC.—*Equipment Trusts.*—The Interstate Commerce Commission has authorized an issue of $3,000,000 of 4½ per cent equipment trust certificates to be sold at not less than 93.94. The company proposed to sell the certificates to Kuhn, Loeb & Co.

New Director.—J. H. Perkins, president of the Farmers Loan and Trust Company, has been elected a director to succeed Frank A. Vanderlip, resigned.

UNION PACIFIC SYSTEM.—*Annual Report.*—The annual report for the year ended December 31, 1923, issued this week, shows a surplus of $13,692,569, as compared with a surplus of $6,119,407 in 1922. The income statement follows:

	1923	1922	Increase
Operating revenues	$211,318,465	$192,877,122	$18,441,344
Operating expenses	152,249,080	143,846,229	8,402,851
Revenues over expenses	59,069,385	49,030,892	10,038,493
Taxes	13,573,067	13,251,551	321,515
Uncollectible railway revenues	21,784	13,274	8,510
Railway operating income	45,474,535	35,766,067	9,708,468
Rents from use of joint tracks, etc.	1,262,891	1,208,517	54,373
Hire of equipment—debit balance etc.	7,077,180	3,478,266	3,598,914
Net income from transportation operations	39,660,246	33,496,318	6,163,928
Income from investments	17,513,567	15,749,563	1,764,004
Total income	57,173,812	49,245,881	7,927,932
Fixed and other charges	17,251,606	16,906,157	345,449
Net income from all sources	39,922,206	32,339,723	7,582,483
Dividends on stock of Union Pacific Railroad Co.:			
Preferred stock at 4 per cent	3,981,740	3,981,740	.....
Common stock at 10 per cent	22,229,160	22,229,160	.....
Sinking fund requirements	18,737	9,417	9,320
Total appropriations of net income	26,229,637	26,220,317	9,32[illegible]
Surplus, transferred to profit and loss	13,692,569	6,119,407	7,573,162

The annual report of the Union Pacific will be reviewed editorially in next week's issue.

WISCONSIN CENTRAL.—*Bond Issue.*—A new issue of $6,000,000 three-year 5½ per cent notes is being placed privately by Dillon, Read & Co., and the National City Company.

Treasury Payments to Railroads

Since last announcement, dated March 1, 1924, payments under Sections 204, 209, 210 and 212 of the Transportation Act, 1920, as amended, have been made by the Treasury as follows:

Section 204:	
Texas-South-Eastern R. R.	$3,986.29
Section 209:	
Bowden Railway	10,669.09
Missouri Pacific	660,448.73
New Park & Fawn Grove	2,071.56
St. Johnsbury & Lake Champlain	9,987.78
Section 210:	
New York, New Haven & Hartford	3,400,000.00
Total	$4,087,163.45

Trend of Railway Stock and Bond Prices

	April 8	Last Week	Last Year
Average price of 20 representative railway stocks	63.95	63.07	65.88
Average price of 20 representative railway bonds	85.98	84.88	82.99

Railway Officers

Executive

George A. Harwood, assistant to the president of the New York Central Lines, has been appointed vice-president in charge of improvements and development. Mr. Harwood was born on August 29, 1879, at Waltham, Mass. He was graduated from Tufts College with the degree of B. S. in civil and electrical engineering in 1898 and in 1901 was awarded the degree of M. S. in these two branches. He began railroad work in 1893 in the engineering department of the Fitchburg Railroad (now a part of the Boston & Maine) and with the exception of the time spent in college, he remained with that road until 1900 when he entered the service of the New York Central in the engineering department. On November 1, 1906, he was appointed chief engineer of improvements in the electric zone and was in charge of the construction of Grand Central Terminal and general improvements on the lines under electrification in the metropolitan area, later handling in addition special work in connection with other improvements and developments in New York City, Buffalo, Cleveland, and other places. On July 1, 1916, he was appointed engineering assistant to the vice-president of the New York Central Lines and on June 10, 1918, engineering assistant to the federal manager of the New York Central Railroad. The following July he was appointed corporate chief engineer of all the roads embraced in the New York Central Lines, and in February, 1920, became assistant to the president of these properties, in which position he was serving at the time of his election to the vice-presidency.

G. A. Harwood

Raymond D. Starbuck, assistant vice-president of the New York Central Railroad, has been elected vice-president in charge of operation of the New York Central Lines, succeeding P. E. Crowley, who has been elected president. Mr. Starbuck was born on July 26, 1878, at Fort Ann, N. Y., and was educated at Cornell University. He entered railway service in January, 1903, as an assistant engineer on the Michigan Central. In June of the following year he was promoted to division engineer, and a year later was appointed assistant chief engineer. In June, 1912, Mr. Starbuck was appointed special engineer to the assistant vice-president of the New York Central Lines and in April of the following year was promoted to special engineer to the vice-president. In February, 1915, he was appointed special engineer to the president and, in January of the following year, special engineer to the vice-president of the New York Central Railroad. In May, 1916, he was promoted to assistant to the vice-president. In February of the following year he was appointed assistant general manager of the lines west of Buffalo and during the federal control served as assistant federal manager of the same lines and, for some months, as assistant regional director of the Eastern region of the Railroad Administration. At the termination of federal control he was appointed assistant vice-president of the New York Central Railroad, and later in a similar capacity also for the Kanawha & Michigan, the Kanawha & West Virginia, the Toledo & Ohio Central and the Zanesville & Western. In this capacity Mr. Starbuck was serving at the time of his recent promotion.

R. D. Starbuck

Financial, Legal and Accounting

J. H. Barwise, Jr., general attorney for the Ft. Worth & Denver City, the Wichita Valley and the Trinity & Brazos Valley, has been appointed general solicitor for the Colorado & Southern, and district attorney for the Chicago, Burlington & Quincy, with headquarters at Denver, Colo., succeeding **E. E. Whitted,** who has resigned to engage in the private practice of law.

J. H. Howard, assistant controller of the Chicago, Milwaukee & St. Paul, with headquarters in Ravenswood, Chicago, has been transferred to the general office in the same city, a newly created position. **O. P. Barry,** auditor of expenditure, with headquarters at Chicago, has been promoted to assistant controller, with the same headquarters, succeeding Mr. Howard. **J. W. Severs,** assistant auditor of expenditure, with headquarters at Chicago, has been promoted to auditor of expenditure, with the same headquarters, succeeding Mr. Barry. **E. P. Willey** has been appointed assistant auditor of expenditures, with headquarters at Chicago, succeeding Mr. Severs.

Traffic

Oscar Townsend, general freight agent of the Chicago Great Western, with headquarters at Chicago, has been promoted to traffic manager in charge of freight and passenger traffic, with the same headquarters, a newly created position. He was born on April 15, 1874, at Cleveland, O. After graduating from the University of Cleveland, Mr. Townsend entered railway service as a rate clerk on the Cleveland, Lorraine & Wheeling, now a part of the Baltimore & Ohio. A few years later he left railway service for a time, returning as a rate clerk for the Canadian Pacific at Pittsburgh, Pa. He was later promoted to traveling freight agent and after serving three years in this capacity, was appointed to a similar position with the Chicago, Milwaukee & St. Paul. Mr. Townsend entered the service of the Chicago Great Western as assistant general freight agent, with headquarters at St. Paul, Minn., in May, 1910. He was promoted to general freight agent, with headquarters at Chicago, in June, 1921, and held this position until his recent promotion to traffic manager in charge of both freight and passenger traffic.

O. Townsend

James E. Roach has been appointed assistant general agent, passenger department, of the Canadian Pacific with headquarters at New York.

C. V. Harrow has been appointed commercial agent for the Erie, with headquarters at Toledo, Ohio.

The following have been appointed commercial agents of the Atlantic Coast Line: **W. N. Ernst**, Philadelphia, Pa.; **James L. Wells**, Sanford, Fla., and **F. E. McKenzie**, Savannah, Ga.

Operating

J. J. French, acting general manager of the Arkansas & Louisiana Missouri, with headquarters at Monroe, La., has been appointed general manager, with the same headquarters.

H. M. Wigney, superintendent of car service of the Merchants Despatch, Inc., with headquarters at New York, has been promoted to general superintendent of transportation, with the same headquarters.

J. H. Robinson has been appointed trainmaster of the Seattle division of the Northern Pacific, with headquarters at Seattle, Wash., succeeding Fred Brastrup, whose promotion to superintendent of the Fargo division was reported in the *Railway Age* of March 15.

G. E. Rollins, terminal trainmaster of the Atlantic Coast Line, with headquarters at Florence, S. C., has been appointed trainmaster of the Norfolk district, with headquarters at Tarboro, N. C. **H. McA. McNeill** has been appointed terminal trainmaster, with headquarters at Florence, succeeding Mr. Rollins.

Engineering, Maintenance of Way and Signaling

L. B. Holt, whose promotion to engineer of track of the New York Central, lines west of Buffalo, was reported in the *Railway Age* of April 5, entered railway service in 1894 as a rodman on the Chicago, Rock Island & Pacific. The following year, he was promoted to draftsman and a year later to assistant engineer. Mr. Holt held this position until 1901 when he was promoted to division engineer on the lines in Iowa and Missouri. He was subsequently appointed division engineer of the Iowa division, serving in that capacity until 1906, when he entered the service of the Lake Shore & Michigan Southern, now a part of the New York Central, as assistant engineer. Mr. Holt was appointed office engineer to the chief engineer of the New York Central, lines west of Buffalo, with headquarters at Cleveland, Ohio, in 1917, and he continued in this position until his recent promotion to engineer of track, with the same headquarters.

L. B. Holt

C. H. Griggs has been promoted to division engineer of the Buffalo, Rochester & Pittsburgh, with headquarters at East Salamanca, N. Y., succeeding F. A. Benz, resigned to engage in business.

Gordon Grant has been appointed principal assistant engineer of the Central region of the Canadian National, with headquarters at Toronto, Ont. The position of assistant chief engineer of the Central region has been abolished and H. T. Hazen, who held that position, has been assigned to other duties.

Mechanical

A. C. Melanson has been appointed acting superintendent of the St. Malo shops of the Canadian National.

T. J. Clayton has been appointed master mechanic of the Texarkana & Ft. Smith, with headquarters at Port Arthur, Tex., succeeding **A. D. Williams**, assigned to other duties. The headquarters of the master mechanic are changed from Texarkana, Tex., to Port Arthur.

L. D. Freeman, assistant to the chief of motive power and equipment of the Seaboard Air Line with headquarters at Norfolk, Va., has resigned to become assistant to the chief mechanical officer of the Chesapeake & Ohio, with headquarters at Richmond, Va., effective April 1.

Purchasing and Stores

D. C. King, general storekeeper of the Virginian, with headquarters at Princeton, W. Va., has been promoted to purchasing agent, with headquarters at Norfolk, Va., succeeding Tom Moore, resigned. **J. H. McGlothlin** has been appointed general storekeeper, with headquarters at Princeton, succeeding Mr. King.

Obituary

J. W. Walton, formerly general manager of the Missouri, Kansas & Texas, died at Denison, Tex., on February 21.

Howard M. Jones, supervisor of engineering, bureau of valuation of the Interstate Commerce Commission, whose death in Washington, D. C., on March 29 was reported in the *Railway Age* of April 5, was born in 1875, at Murphysborough, Tenn. He attended Vanderbilt University at Nashville, Tenn., and received the degree in civil engineering at Union College, Schenectady, N. Y., in 1895. Mr. Jones entered the service of the Nashville, Chattanooga & St. Louis as an assistant engineer in 1895 and held this position until 1906. He later was placed in charge of estimates on new construction and supervision of accounts in the office of the chief engineer, in connection with maintenance of way. From 1906 to 1914, Mr. Jones engaged in private practice as a consulting engineer. In the latter year he was appointed a member of the engineering board of the Interstate Commerce Commission, in charge of the Southern region, with headquarters at Chattanooga, Tenn. On January 1, 1922, when the engineering board was abolished, Mr. Jones was appointed supervisor of engineering, bureau of valuation, and he held this position until his death.

H. T. Douglas, Jr., chief engineer of the Chicago & Alton, whose death on March 31 was reported in the *Railway Age* of April 5, was born on June 16, 1863, in Richmond county, Virginia, and entered the railway service in 1880 as rodman on the Georgia Pacific, now a part of the Southern. In 1881 he was employed by the Baltimore & Ohio as an instrument man and subsequently was promoted to assistant resident engineer and resident engineer on the Philadelphia division. Mr. Douglas was appointed division engineer on the Mobile & Ohio in 1887. In 1889 he was appointed locating engineer and resident engineer on the Seaboard Air Line and held this position until 1891, when he was appointed assistant engineer on the Baltimore & Ohio. Mr. Douglas was appointed locating engineer on the Chesapeake & Ohio in 1892, and later in the same year, was appointed to a similar position on the Chicago & Eastern Illinois. He was appointed chief engineer of the Ohio Southern in 1893, and in 1894 was appointed locating engineer of the Virginia, Fredericksburg & Western. From 1897 to 1899, he served as assistant engineer, in charge of harbor and seacoast defense work, in the War Department. He was appointed chief engineer of the Pittsburgh & West Virginia in 1899, and held this position until 1901, when he was appointed chief engineer of the West Side Belt railroad. Mr. Douglas was appointed chief engineer of the Wheeling & Lake Erie in 1904, and he held this position until 1912, when he was appointed chief engineer of the Chicago & Alton. At the time of his death Mr. Douglas was a member of the Board of Direction of the American Railway Engineering Association.

THE CHICAGO, BURLINGTON & QUINCY, the Great Northern and the Northern Pacific will expend $500,000 in advertising the attractions of the Pacific northwest during 1924, following the success of the campaign last year.